PLATO'S NATURAL PHILOSOPHY

Plato's dialogue the *Timaeus-Critias* presents two connected accounts, that of Atlantis and its defeat by ancient Athens and that of the creation of the cosmos by a divine craftsman. This book offers a unified reading of the dialogue. It tackles a wide range of interpretative and philosophical issues. Topics discussed include the function of the famous Atlantis story, the notion of cosmology as 'myth' and as 'likely', and the role of God in Platonic cosmology. Other areas commented upon are Plato's concepts of 'necessity' and 'teleology', the nature of the 'receptacle', the relationship between the soul and the body, the use of perception in cosmology, and the dialogue's peculiar monologue form. The unifying theme is teleology: Plato's attempt to show the cosmos to be organised for the good. A central lesson which emerges is that the *Timaeus* is far closer to Aristotle's physics than previously thought.

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A study of the Timaeus-Critias

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In 1992–3 I attended two graduate seminars at Cambridge given by Myles Burnyeat and Geoffrey Lloyd, followed by a May Week seminar, all dedicated to the *Timaeus*. The aim of this 'Year of the *Timaeus*' was, in part, to rescue the dialogue, once central to the Platonic canon, from the relative obscurity into which it had slipped. Ten years on, as the bibliography will testify, the rescue mission is well under way. This book represents my contribution.

My efforts have been helped by many whom it is my pleasure to thank here. I began the work in earnest during a happy year as a junior fellow at the Center for Hellenic Studies, under the directorship of Kurt Raaflaub and Deborah Boedeker. A research leave award from the AHRB subsequently allowed me bring the project to near completion. Finishing touches were added during my stay at the Institute for Advanced Study in 2002, where I enjoyed the help and encouragement of Heinrich von Staden.

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Introduction: Plato's tales of teleology

> The ancient covenant is in pieces; man knows at last that he is alone in the universe's unfeeling immensity, out of which he emerged only by chance. His destiny is nowhere spelled out, nor is his duty. The kingdom above or the darkness below; it is for him to choose.[1]

Does the universe support our moral endeavours? Does the world, as we know it, give us reason to think that we will be better off, happier, more thriving, if we pursue a course of moral probity than if we do not? Does the universe make us feel at home as moral agents? Does goodness or beauty figure in the world independently of us? Can we learn something about how to live our lives from observing the universe? Many today would agree with Jacques Monod in answering 'no' to all of these questions. We live in an 'unfeeling' universe. The world is insensitive to our moral concerns. Values are mere human 'constructs', which the universe at best is indifferent to and at worst undermines.

Reading Plato we are brought back to a world in which the 'ancient covenant', the moral agreement between man and the universe, still holds. It is a tenet of Plato's thought that man is not alone in the universe with his moral concerns. Goodness is represented in the universe. We can therefore learn something about goodness by studying the cosmos. Cosmology teaches us how to lead our lives. It is therefore a recommended course of studies if we are to become better people.[2] This is Plato's claim in the *Timaeus-Critias*.

[1] Final words of Jacques Monod (1971).

[2] Cf. *Tim*. 90c–d: 'Now there is but one way to care for anything, and that is to provide for it the nourishment and the motions that are proper to it. And the motions that have an affinity to the divine part within us are the thoughts and revolutions of the universe. These, surely, are the ones which each of us should follow. We should redirect the revolutions in our heads that were thrown off course at our birth, by coming to learn the harmonies and revolutions of the universe; and so bring into conformity with its objects our faculty of understanding, as it was in its original conditions. And when this conformity is complete, we should have achieved our goal: that most excellent life offered to humankind by the gods; both now and for ever more' (Zeyl transl.).

This book is about the representation of goodness in the cosmos as Plato sees it in the *Timaeus-Critias*. Far from being value-free, cosmology for Plato is centred on the representation of goodness and beauty. He sees it as the central task of cosmology to articulate the way in which the cosmos manifests those values. Another word for this conception of cosmology is 'teleology'. For Plato goodness and beauty do not just happen to be found in the cosmos. They are there because the cosmos is so designed. A teleological explanation, understood very broadly, explains something by reference to its end or goal. Teleological explanations therefore typically take the form 'X occurs in order that Y or so that Y'. In Plato's natural philosophy, however, teleology takes the more specific form of explaining phenomena by reference to ends considered as good or beautiful.[3] We seek to show that the cosmos works the way it does because so working makes the cosmos good and beautiful. So this book is also about Plato's teleology, as the form of explanation that demonstrates how the cosmos works for the good.

The conception of teleology as centred on the good is familiar from Plato's *Phaedo*. Socrates in his younger days was excited to hear Anaxagoras' view that Mind directed everything because he thought that 'if this were so, the directing Mind would direct everything and arrange each thing in the way that was best' (97c). So he 'was ready to find out about the sun, and the moon and the other heavenly bodies, about their relative speed, their turnings and whatever else happened to them, how it is best that each should act or be acted upon' (98a2–7).[4] Socrates expected not just that Mind had arranged matters with an end in mind but that this end was the best possible arrangement. Cosmology should show how matters are arranged with a view to a goal that is good.[5] As it happened, Anaxagoras failed to live up to Socrates' expectations. However, as scholars have often pointed out,[6] the *Phaedo* set the terms for the kind of teleological cosmology that would find its fulfilment in the *Timaeus*.

There are in the *Timaeus* two points about this kind of cosmology that make it relevant to ethics. The first is that the very properties that constitute

[3] A similar view of Aristotle's natural teleology is held by Cooper (1982) and Furley (1996). See Woodfield (1976) for a modern theory of teleology centred on goodness.

[4] Grube transl.

[5] *Phd.* 98a9–b3 further makes it clear that Socrates expects a teleological cosmology to specify both the good for each thing (τὸ ἑκάστῳ βέλτιστον) and the common good (τὸ κοινὸν πᾶσιν ἀγαθόν). However, the passage does not make it clear whether 'each thing' is supposed to mean each kind of thing or each individual. The examples 'sun', 'moon', 'heavenly bodies' are compatible with either option. In the *Timaeus* teleology works both on the level of each kind of thing within the cosmos (cf. for example, the divine foresight (*pronoia*) that goes into the creation of the human body, 44e–45b) and on the level of the cosmos as a whole (cf. 30c–31a).

[6] Cf. Cornford (1937) 174–5, Lennox (1985), and Sedley (1989) 359.

goodness in the cosmos also do so in human life: order and proportionality. Timaeus' ethical recommendation is therefore that through cosmology we imitate the order of the universe in our own souls and thereby become more virtuous and happier. The second point is that the cosmology of the *Timaeus* is to a limited extent anthropocentric. It is anthropocentric only to a limited extent because the primary task of cosmology is to demonstrate the goodness and beauty of the whole cosmos, of which man is just a part. Nevertheless, we see a kind of anthropocentricity, for example, in the view that the sun illuminates the heavens so that by observing the planets 'those animals to which it was appropriate' can learn the mathematical regularities that govern their motions and thereby become better persons (*Tim*. 39b–c, cf. ch. 8 pp. 165–6).[7] The foresight that lies behind the universe takes into account in a special way the ethical requirements of living beings such as us. There is therefore a sense in which the cosmos also fulfils *its* purpose when we use cosmology to become better persons.

We are accustomed to thinking of the Socrates of the so-called early dialogues as having no interest in natural philosophy. Famously, he says to the jurors in the *Apology* that 'I do not speak in contempt of such knowledge, if someone is wise in these things . . . but, gentlemen, I have no part in it' (19c). It may of course be because Socrates is here 'on record' as not doing natural philosophy that Plato chooses another character to present the cosmology of the *Timaeus*.[8] Yet it is not entirely clear, even in the *Apology*, whether Socrates' lack of interest relates to natural philosophy as such or to how it has commonly been practised. However this may be, there is in Plato another strand in Socrates' thinking about the cosmos which, springing from concerns with moral and divine order, would sanction an ethically informed cosmology.[9] So Socrates at *Gorgias* 508a invokes wise men who 'claim that community (*koinōnia*) and friendship (*philia*), orderliness (*kosmiotēs*), self-control (*sōphrosunē*), and justice (*dikaiotēs*) hold together heaven and earth, and gods and men, and that is why they call this universe a world order (*kosmos*)'. Again in *Republic* IX Socrates says that

[7] Timaeus' phrasing may make it sound as if the fact that human beings rather than other animals benefit from cosmology is accidental. However, since the other animals represent the souls of human beings who have failed to take proper account of cosmology there is a sense in which Timaeus' point applies particularly to human beings. I am grateful to one of the readers for helping me clarify this point.

[8] I am not concerned here with the questions of what the opinions of the historical Socrates were and whether Plato moved away from them, but with the idea that Plato might wish to present his own Socrates character as consistent in his attitude to cosmology across the dialogues.

[9] There is a similar duality in Xenophon's portrayal of Socrates. Whilst denying interest in cosmology at *Mem.* I.1.11–13, Xenophon's Socrates also shows the teleological ordering of the cosmos when arguing for the benefaction of the gods at *Mem.* IV.3.3–14.

there is an example of the just city laid up in heaven for the wise man to imitate (592b).[10] And at *Philebus* 28d–30c Socrates argues that Mind (*nous*) is the cause of the ordered motions of the heavens just as it brings about order and health in the human body. These passages suggest that Socrates would be sympathetic to a cosmology which showed the cosmos as an exemplar of good order to be studied and imitated by us.[11] The *Timaeus-Critias* is Plato's fullest development of this notion of cosmology.

There is of course nothing new in saying that Plato's cosmology is teleological or that the *Timaeus* occupies a foundational role in ancient natural philosophy as what David Sedley aptly calls 'the teleologists' bible'.[12] What I hope is new in this book is the attempt to show the extent to which Plato's concern with teleology ties together the seemingly disparate strands of discussion in the *Timaeus-Critias*. This point applies, to mention some of the topics tackled, to the question of the unity of the *Timaeus-Critias* (ch. 1), the status of the Atlantis story and the cosmology (chs. 2 and 3), the notion of divine craftsmanship (ch. 4), the concept of necessity (ch. 5), the relationship between the body and the soul (ch. 7), the account of the contribution of sense-perception to cosmology (ch. 8), and even, I suggest, to the work's peculiar monologue form (ch. 9). This book offers teleology as a unifying theme running through a work that has often been dealt with in an episodic fashion.

Let me also say from the outset what this book does not deal with or deals with only in passing. As Taylor's (1928) commentary shows, the *Timaeus-Critias* is a work that invites prolixity. It is an especially demanding dialogue to interpret because, as befits a work on the cosmos, it covers so many different topics. I have remained silent on many of these topics either because of the limitations of my project or because the topics are often well covered in the published literature and I did not feel that I had anything new and relevant to contribute. These include details of Plato's political position in the *Timaeus-Critias* as compared with that of the *Republic*, *Statesman*, and *Laws*, on which I refer the reader to the work of C. Gill and more recently Pradeau (1995). While I regularly draw connections between the *Timaeus-Critias* and other Platonic dialogues, I have not attempted a systematic comparison. Consequently, I have not been in a position to discuss

[10] For a defence of the idea that 'heaven' here refers to the cosmos (rather than a realm of Forms), see Burnyeat (2000a) 781.

[11] I am thus broadly sympathetic to Graham's (1991) claim that 'Plato's demand for teleological explanation in natural philosophy has roots in Socratic ethics' (8), although I am not sure to what extent the demand is rooted in the specifics of Socrates' ethical programme.

[12] Sedley (1998a) 152.

the dating of the dialogue either. My own view is that the dialogue is 'late', though that may ultimately only mean that I have found my own reading of the *Timaeus-Critias* enriched by familiarity with other dialogues commonly considered early or middle period. Nor will the reader find a discussion here of the details of the dialogue's use of mathematics, on which I would refer to Cornford (1937), Vlastos (1975), and Burnyeat (2000b), or the dialogue's afterlife in the history of astronomy, on which one might consult Sambursky (1963), Wright (1995), and Gregory (2000). More generally, the dialogue's considerable influence on later ancient and medieval philosophy is not discussed in this book (for which cf., e.g., Baltes (1976–8)).

Finally, this book offers no treatment of the details of Plato's debts to the Presocratics (cf. Taylor (1928), Cornford (1937), and Calvo and Brisson (1997)). This omission may seem to require special pleading. Plato clearly in some sense intends the *Timaeus* to be read as a response to Presocratic natural philosophy, sometimes referred to as the *Peri phuseōs* ('On Nature') tradition.[13] It seems clear that the *Timaeus* borrows extensively from Empedocles, Democritus, Xenophanes, Parmenides, and others. However, the extent and exact nature of these borrowings are in many cases elusive.[14] Moreover, given Socrates' criticism of Presocratic cosmology in the *Phaedo* (echoed by *Timaeus* 46d1–e6), we should expect Plato not simply to take over his predecessors' accounts unchanged. Rather they have to be modelled to fit the dialogue's teleological agenda.[15] I have therefore taken the question of the manner and degree in which teleology explains the universe to be the fundamental one if we are then in turn to understand Plato's adaptation of Presocratic materials.

From the point of view of articulating Plato's teleology I have thought it instructive to place the *Timaeus-Critias* within the context of Aristotle's philosophy. As David Furley puts it, the *Timaeus* 'did as much as any other single work of his predecessors to shape [Aristotle's] philosophy of nature'.[16] This is not to say that Aristotle always agrees with Plato, or that we can blithely assume that Aristotle represents Plato's positions correctly. However, the teleological outlook that drives both philosophers often makes

[13] Cf. Naddaf (1997) and the introduction in Wright (2000).

[14] Cf., for example, Hershbell (1974), who argues (against Taylor (1928)) that whilst there are similarities between Empedocles and the *Timaeus* 'there are no direct references to Empedocles or to his works in the *Timaeus*' (165) and 'there are no apparent quotations, or readily identifiable verbal echoes or paraphrases' (165). He concludes that though 'it is most likely' (166) that the *Timaeus* is influenced by Empedocles, 'much more cannot be asserted with confidence'.

[15] Diogenes of Apollonia, sometimes credited as the first teleologist, may be an honourable, if enigmatic, exception, though Laks (1983) 250–7 tells a cautionary tale. For a very high estimate of Diogenes' influence on Socrates, see Burnet (1911).

[16] Furley (1996) 63.

them confront the same kinds of questions and objections. I hope therefore to convey a sense of the ways in which Plato anticipates the concerns of Aristotle's natural philosophy, even where their specific answers differ. One danger of such comparisons between Plato and Aristotle is that Plato's ideas will seem underdeveloped and less articulate than Aristotle's. Whilst the *Timaeus-Critias* is as much about teleology as Aristotle's *Physics*, there is nothing in the *Timaeus* to correspond to the detailed analysis of final causation in *Physics* II. This difference has much to do with the generally contrasting writing styles of the two philosophers' extant works. But it also reflects Plato's different strategy of persuasion in the *Timaeus-Critias*. Whilst devoid of neither argument nor conceptual analysis, the work equally persuades by *painting a picture* in words of our world as predominantly good and beautiful. It seeks thereby to convert us to a way of looking at the world that gives us confidence in the relevance and success of the morally good life, if we choose it. As a picture, the work draws us in by its detail and completeness, 'from the creation of the cosmos down to the nature of man' (27a6). The *Timaeus-Critias* can in part, then, be viewed as a philosophical *ekphrasis*, or depiction in words, of the whole cosmos. To see one's proper place in this world order is to understand the practical imperative of leading the good life.

CHAPTER 1

What is the Timaeus-Critias *about?*

One of the basic puzzles of the *Timaeus-Critias* concerns the thematic unity of the dialogue.[1] Why is the bulk of the dialogue taken up with a discussion of natural philosophy when it apparently sets out simply to give an account of a war between Atlantis and ancient Athens? What, if anything, does natural philosophy have to do with war?

The *Timaeus-Critias* is presented as a continuation of the *Republic*. Socrates begins by reporting a conversation he had yesterday, in which he described a constitution (*politeia*) which in outline matches that of the *Republic*.[2] He now expects his listeners from yesterday to repay him in kind. Here is what he wants:

> And now, in the next place, listen to what my feeling is with regard to the city which we have described. I may compare my feeling (*pathos*) to something of this kind: suppose, for instance, that on seeing beautiful creatures, whether works of painting (*graphē*) or actually alive but in repose, a man should be moved with desire to behold them in motion and vigorously engaged in some such exercise as seemed suitable to their bodies; well, that is the very feeling I have regarding the city we have described. Gladly would I listen to anyone who should describe in words our city contending against others in those struggles which cities wage; in how proper a fashion it enters into war, and how in its warring it exhibits qualities such as befit its education and training in its dealings with each several city whether in respect of military actions or in respect of verbal negotiations.[3] (19b3–c9, transl. Bury with alterations)[4]

[1] I take it to be relatively unproblematic and generally undisputed today that the two works form a *compositional* unity. Thus Critias' story is announced at 27a2–b6 as part of the same plan (*diathesis*, 27a2) as Timaeus' account and at the beginning of the *Critias* Timaeus hands over the next account (*ton exēs logon*) to Critias. On the composition of the dialogue as a whole, cf. Clay (1997), Welliver (1977) 58ff.

[2] For a discussion of the degree of 'match', see Gill (1977).

[3] ἀκούοιτ᾽ ἂν ἤδη τὰ μετὰ ταῦτα περὶ τῆς πολιτείας ἣν διήλθομεν, οἷόν τι πρὸς αὐτὴν πεπονθὼς τυγχάνω. προσέοικεν δὲ δή τινί μοι τοιῷδε τὸ πάθος, οἷον εἴ τις ζῷα καλά που θεασάμενος, εἴτε ὑπὸ γραφῆς εἰργασμένα εἴτε καὶ ζῶντα ἀληθινῶς ἡσυχίαν δὲ ἄγοντα, εἰς ἐπιθυμίαν ἀφίκοιτο θεάσασθαι κινούμενά τε αὐτὰ καί τι τῶν τοῖς σώμασιν δοκοῦντων προσήκειν κατὰ τὴν ἀγωνίαν ἀθλοῦντα· ταὐτὸν καὶ ἐγὼ πέπονθα πρὸς τὴν πόλιν ἣν διήλθομεν. ἡδέως γὰρ ἄν του λόγω διεξιόντος ἀκούσαιμ᾽ ἂν ἄθλους οὓς πόλις ἀθλεῖ, τούτους αὐτὴν ἀγωνιζομένην πρὸς πόλεις ἄλλας, πρεπόντως εἴς τε πόλεμον ἀφικομένην καὶ ἐν τῷ πολεμεῖν τὰ προσήκοντα ἀποδιδοῦσαν τῇ παιδείᾳ καὶ τροφῇ κατά τε τὰς ἐν τοῖς ἔργοις πράξεις καὶ κατὰ τὰς ἐν τοῖς λόγοις διερμηνεύσεις πρὸς ἑκάστας τῶν πόλεων.

[4] Where no translator is specified translations in this book are my own.

The Atlantis story is told by Critias in response to this request. In the story the citizens of ancient Athens take on the role of Socrates' virtuous citizens. The story shows how the Athenians entered into war 'in a proper fashion', defending themselves and the rest of the Mediterranean world against the aggression of Atlantis. Athens defeated the enemy, showing in her isolation her superior virtue and strength (*aretē kai rōmē*). Critias never completes the Atlantis story. So we lack the details of the war, such as how the Athenians dealt, to quote Socrates, 'with each several city whether in respect of military actions or in respect of verbal negotiations'. However, it is clear from the start that the Atlantis story is meant to illustrate the virtues of Socrates' ideal citizens. As Critias says, he was amazed at how 'uncannily (*daimoniōs*) by some unmeditated stroke of luck' his story corresponded with Socrates' description of the ideal city (25e2–5).

Critias is indeed 'lucky'. Not only does the Atlantis story happen to fit the particulars of Socrates' request in the *Timaeus*, it also satisfies Socrates' criteria for admissible story-telling in the *Republic*. Socrates makes it clear already in Book III of the *Republic* that the stories that we should tell ought to show how good men benefit from their virtue and bad men suffer from their vice (392b). However, he realizes that he cannot assume this point but needs to demonstrate how justice 'given its nature rewards its possessor whether or not he gives an impression of justice' (392c1–4). By *Republic* X Socrates has accounted for the nature of justice and shown, as he believes, how justice makes one happy and injustice makes one miserable. Despite his strictures on imitative poetry, he reasserts the admissibility of the sort of poetry that praises gods and good men (607a3–5): 'you should know that the only poetry we can admit into our city is hymns to the gods and encomia of good men'.

As I argue more fully in chapter 2, the Atlantis story reads as an example of this sort of encomiastic poetry. It shows how the Athenians by their virtue overcame their evil opponents. But if this is so, the question arises why Critias does not simply tell us the Atlantis story straightaway but postpones it until Timaeus has given his account of the creation of the *kosmos*. For it would seem that Critias could simply recount the actions of the war, relying on Socrates' argument in the *Republic* for the point that the justice of the Athenians led to their flourishing and the injustice of the Atlantids to their grief. Instead what we get is about sixty-five Stephanus pages of natural philosophy before Critias returns to the Atlantis story. This is how Critias describes the plan of the speeches:

> Timaeus shall speak first. He knows more about astronomy than the rest of us and has had made knowledge of the nature of the universe his chief object; he will begin with the generation of the world and end with the nature of man. Then I am to follow, taking over from him mankind, whose origin he has described, and from you [*sc*. Socrates] a portion of them who have received a supremely good training. (27a3–b1)

Critias here indicates an explanatory connection between the Atlantis story and Timaeus' account of the universe and the nature of man. In telling his story Critias relies both on our understanding of the way in which the Athenians have been educated and on Timaeus' account of their nature. What is the relevance of this account of human nature to the Atlantis story? And why is Socrates' demonstration in the *Republic* of how happiness follows from virtue apparently not sufficient to explain how his citizens would behave successfully in war?

My suggestion is that the *Republic*'s approach to justice and its benefits may be seen as inadequate on its own to persuade us that the virtuous citizens would be successful in war. For we may in the *Republic* have seen how justice manifests itself *internally* in the individual character and the individual state, but we have not seen how it expresses itself *externally* in relation to other cities or other types of citizen. The 'internalist' approach to justice and its rewards is quite appropriate in the *Republic* given the task that Socrates was set in that dialogue, namely, to show how justice in and of itself, whatever its consequences in the world, makes its possessor happier than injustice (*Rep*. 367d–e). However, this approach leaves questions as to how justice understood as the right order of soul or a city asserts itself when confronted with an *external* challenge or threat.

In the *Republic*, the guardians hold the most important job in the city (*Rep*. II 374d–e), protecting the city against its enemies, internal as well as external. Like a watchdog, the guardian's character has to be both gentle and fierce, gentle towards friends, fierce towards enemies. Initially, the role of philosophy is said to be the recognition of one's friends and foes, again in the manner of a watchdog. However, as the dialogue proceeds to lay down the education of the philosopher, the character of his knowledge, and the institutions that ensure justice and cohesion within the city, it is easy to lose sight of the part of the philosopher's guardianship that concerns warding off the city's external enemies. Occasionally, we are reminded that this part should not be forgotten, for example in Book VII when Socrates complements the guardians' education in mathematics and dialectic with the experience of warfare in order, as he says

continuing the watchdog image, 'to give them a taste of blood as we do whelps' (537a).

If the guardian's role in war is allowed to slip somewhat out of sight in the *Republic*, the *Timaeus* sharply refocuses on it. Though Socrates in his speech at *Timaeus* 19bff. speaks generally of the *city's* actions in war, without specifying any particular group of citizens, it must be the guardians (or the 'guards' as one might also translate *phulakes*) that he specifically has in mind. For it is they who were said to fight on behalf of all (*pro pantōn*, 17d3). In his résumé of the ideal state Socrates addresses primarily the military role of the guardians. He introduces them as follows: 'And when we had given to each [citizen] that single employment and particular art which was suited to his nature, we spoke of those who were intended to be our warriors, and said that they were to be guardians of the city against attacks from within as well from without, and to have no other employment' (17c–18a). He goes on to compare the guardians to mercenaries (18b). At 17d3–18a2 Socrates distinguishes between the guardians' gentle treatment of their own subjects, who are their natural friends even when they do wrong, and the guardians' harsh treatment of those of their enemies whom they encounter in battle. Again this is the theme, familiar from *Republic* II, of the watchdog being gentle to friends and fierce to foes. It is then external war that particularly draws on the guardians' harsh, spirited nature, a nature they have developed through the bodily activities of *gumnastikē*. The role of philosophy is perhaps hinted at through the reference to the guardians' 'very philosophical' character (though this may still only be in the extended sense that a watchdog is 'philosophical') and the rather vague reference to training in *mousikē* (18a9). However, there is no evidence in the *Timaeus* of the distinction between philosophers and auxiliaries as having separate roles corresponding to their different degrees of *nous* and *thumos*. Rather the guardian represents a single character who is at once both exceptionally spirited and philosophical.[5] Whilst the *Timaeus* maintains the tripartite account of the soul from *Republic* IV,[6] it also takes the guardian to represent the virtues of both the *thumoeides* and the *logistikon*. In that sense, the *Timaeus* reverts to the original character of the philosopher-warrior in *Republic* II.

The *Timaeus* focuses on the guardian's function in war with other cities rather than on their educational and legislative functions within their own

[5] *Tim.* 18a4–5: φύσιν γάρ οἵμαί τινα τῶν φυλάκων τῆς ψυχῆς ἐλέγομεν ἅμα μὲν θυμοειδῆ, ἅμα δὲ φιλόσοφον δεῖν εἶναι διαφερόντως . . .

[6] Cf. *Tim.* 69d, 87a, 89e and chapter 7 below.

city. But what ensures that the virtue and knowledge that enabled the guardian to rule his city well, 'establishing friendship within the city', will also enable him to fulfil his duties as a warrior-guardian in relation to other cities? Given that war is commonly thought to present different demands on our characters from peace, how can we be sure that the guardian's virtuous education will translate into successful action in war? Is the world such that justice prevails in the relations between cities and individuals? The *Republic* may have shown that justice is the best strategy within the individual soul and within the individual city in terms of establishing a harmonious and peaceful order, but does that also mean that justice is the best or even a viable strategy in relation to other cities and individuals who are not necessarily just?

To sharpen our sense of this question, it is helpful to consider some aspects of Thucydides' account of the Peloponnesian War. There are several reasons for thinking that Plato had Thucydides in mind when he composed the *Timaeus-Critias*. One is the theme of the great war. The Atlantis story purports to be the greatest war ever, a claim which immediately invites comparison with the openings of both Thucydides and Herodotus. Another is the description of Atlantis. As Pierre Vidal-Naquet has argued,[7] we find in Atlantis an image of Periclean Athens, a maritime imperial power. Meanwhile, Athens appears as an image of Athens before the Persian Wars. The figure of Hermocrates serves as a reminder of the Peloponnesian War and the downfall of imperialist greed. Athens vs. Sicily, Atlantis vs. ancient Athens, Persia vs. the more recent Athens, all seem to be conflicts of the same type. The presence of Hermocrates reminds us that what is at issue is the *general* phenomenon of unjust aggression against justified self-defence.

Thucydides also bears on the *Timaeus* in so far as his characters present a set of distinctive views on the subject of war and human nature. These views represent a challenge to the view that justice is the best strategy that arises *specifically* out of reflecting on human behaviour in war.[8] At least four references by Thucydides to human nature (*anthrōpeia phusis* or *phusis anthrōpōn*) indicate the central role that human nature may be thought to play in understanding war. First at 1.22.4 Thucydides says that his history will be deemed useful by those who wish to understand what has happened and what will happen – of the same sort or much like

[7] Vidal-Naquet (1981). Cf. Pradeau (1995) 102–10 for a full exposition of the view.

[8] Cf. Cornford (1937) 170–1, who reads the *Timaeus* as responding to Thucydides on the relationship between human foresight and chance in warfare.

it – 'on account of the human thing' (*kata to anthrōpeion*). Human nature ensures the *generalizability* of the account of Peloponnesian War. In the Corcyrean *stasis* section, Thucydides uses 'human nature' to generalize about the destructive behaviour of men in wartime: 'And many and terrible were the things that happened in cities because of *stasis*, and are happening and will continue to happen as long as human nature (*phusis anthrōpōn*) is the same' (3.82.2). Another passage (though here the text is disputed) specifies the negative moral implications of the behaviour that human nature dictates in war:

> Then, with the ordinary conventions of civilized life thrown into confusion, human nature, always ready to offend even where laws exist, showed itself proudly in its true colours, as something incapable of controlling passion, insubordinate to the idea of justice, the enemy of anything superior to itself . . . (3.84, transl. Warner)

In the last two passages, war is seen as unleashing a side of human nature that undermines order and social and moral norms. War is the catalyst for the amoral side of human *phusis*. In the Mytilenean Debate (3.45) Diodotus outlines the psychology of military aggression:

> So long as poverty forces men to be bold, so long as the insolence and pride of wealth nourish their ambitions, and in the other accidents of life they are continually dominated by some incurable master passion or another, so long will their impulses continue to drive them into danger. Hope (*hē elpis*) and desire (*ho erōs*) persist throughout and cause the greatest calamities – desire leading and hope following, the former conceiving the enterprise, and the latter suggesting that it will be successful – invisible factors, but more powerful than the terrors that are obvious to our eyes. Then too, the idea that fortune will be on one's side plays as big a part as anything else in creating a mood of over-confidence; for sometimes she does come unexpectedly to one's aid, and so she tempts men to run risks for which they are inadequately prepared. And this is particularly true in the case of cities, because they are playing for the highest stakes – either their own freedom or for the power to control others – and each individual, when acting as part of a community, has the irrational opinion that his powers are greater than in fact they are. In a word it is impossible (and only the most simple-minded will deny this) for human nature (*tēs anthrōpeias phuseōs*), when once seriously set upon a certain course, to be prevented from following the course by the force of law or by any other means of intimidation whatever. (3.45, transl. Warner with alterations)

The Athenians' speech in the Melian Dialogue again exposes the inefficacy of social norms, and justice in particular, against the perceived necessities of war. Justice, the Athenians tell us, 'enters into the judgment of human affairs (*es to anthrōpeion*) only when the pressure of necessity is equal, and

the powerful exact what they can, and the weak grant what they must' (v.89).[9]

Thucydides, then, presents us with a range of observations about human nature, expressed by different characters in different contexts and with different emphases, which threaten the relevance of moral concerns in war. On this view, which may or may not be Thucydides' own, virtue is just about possible in peacetime, but war unleashes a side of human nature that pays no regard to right or wrong. Power, gain, safety are the concerns, only exceptionally, if at all, justice. If war is the great teacher, one of its lessons seems to be that human nature prevents virtue from playing any significant role in war.

Some scholars have tried to equate the Athenian view of justice in the Melian dialogue with the notion of justice offered by Thrasymachus in Plato's *Republic* and Callicles in the *Gorgias*.[10] Their notion is roughly: justice is what benefits the stronger. Or as the slogan goes, 'might is right'. However, as Simon Hornblower has pointed out,[11] the equation is wrong. The Athenians in Thucydides are not defining justice as the interest of the stronger. On the contrary, they are excluding justice from those cases where the stronger exercises his power. Justice, they say, is only a concern in those cases where the balance of necessity is equal. Properly speaking, the Athenians, therefore, do not redefine conventional justice; rather they marginalize it as politically irrelevant. It is not so much that nature offers us a different notion of real justice in contrast to the conventional notion, but rather that nature does not allow conventional justice to play a role because necessities dictated by human nature ride roughshod over it.[12] As Hornblower puts it, the view expressed is that 'might *excludes* right' rather than that 'might is right'.[13] Thus construed, the Athenian position in the Melian dialogue does not so much represent an ethical position as indicate where and *where not* it makes sense to adopt an ethical position at all.

In contrast, Thrasymachus (as represented by Glaucon) and Callicles infer what is right from certain views about the natural balance between the powerful and the weak. In the *Gorgias* Callicles argues that:

> . . . nature itself reveals that it's a just thing for the better man and the more capable man to have a greater share than the worse man and the less capable man. Nature shows that this is so in many places; both among the other animals and in whole

[9] For a commentary, cf. Grene (1965) 59, 77–8.
[10] For example, O. Murray (1986), criticized by Hornblower (1987) 189, n. 105.
[11] Hornblower (1987) 185–90.
[12] Cf. *Laws* 889e on those who deny that there are natural standards of justice.
[13] Hornblower (1987) 189, n. 105.

cities and races of men, it shows that this is what justice has been decided to be: that the superior rule the inferior and have a greater share than they. For what sort of justice did Xerxes go by when he campaigned against Greece, or his father when he campaigned against Scythia? Countless other such examples could be mentioned. I believe that these men do these things in accordance with the nature of what is just – yes, by Zeus, in accordance with the law of nature, and presumably not with the one we institute. (*Gorg*. 483d–e, transl. Zeyl)

The move that Callicles is making here may be seen as one of deriving 'ought' from 'is'. This is how people naturally behave, so this is how it is just that people should behave, by nature if not by convention (*nomos*). Modern philosophers have tended to dismiss this sort of argument as a fallacy: the way things are does not tell us how they ought to be. In contrast, Socrates' response is not to challenge the claim that the natural order also constitutes a moral order. Rather his reply is to rectify Callicles' conception of the natural order. He thus points to the *kosmos* at 508a:

Yes, Callicles, wise men claim that that community (*koinōnia*) and friendship (*philia*), orderliness (*kosmiotēs*), self-control (*sōphrosunē*), and justice (*dikaiotēs*) hold together heaven and earth, and gods and men, and that is why they call this universe a world order (*kosmos*), my friend, and not a disorder (*akosmia*) or lack of control (*akolasia*). I believe that you don't pay attention to these facts even though you are a wise man in these matters. You've failed to notice that proportionate equality (*hē isotēs hē geōmetrikē*) has great power among both gods and men, and you suppose that you ought to practise getting the greater share (*pleonexia*). That's because you neglect geometry. (transl. Zeyl)

The fact that we call the universe 'an ordered whole', a '*kosmos*', rather than a 'disorder' is taken by the wise men to show that justice and proportionate equality have greater power than injustice and *pleonexia*. The implication is that one ought to practise justice rather than injustice. Hence Callicles stands corrected not on deriving 'ought' from 'is' but on failing to pay attention to the way nature really operates. If he had paid proper attention, he would have seen that nature supports the moral life advocated by Socrates.

The argument is presented as 'what the wise men say', and so is perhaps not offered by Socrates *in propria persona*.[14] The claim that Callicles would have understood all of this if only he had studied geometry makes play on the geometrical associations of *isotēs* and *pleonexia*. However, given the centrality allotted to the mathematical sciences in the education of the philosopher in the *Republic*, it would be dangerous to dismiss this simply as

[14] The idea that equality (*isotēs*, *to ison*) in various forms plays a regulative role in nature is widespread in Presocratic philosophy, cf. e.g. Archytas, fr. 3; Parmenides fr. 8.49; Empedocles fr. 17.27–29.

a joke. Mathematics seems to have a central role in training the philosopher's appreciation of *harmonia* and proportion, on which our understanding of justice depends.[15] We shall see how mathematical astronomy plays a similar role in our ethical development in the *Timaeus*.

In the *Republic*, Glaucon defends Thrasymachus' line that injustice is more beneficial than justice by retelling the story of the ring of Gyges. The upshot of the story, he argues, is that both the just man and the unjust man would do the same (rape, pillage, murder, etc.) if they could get away with it. Here is how he puts it:

> But as for the second point, that those who practise it [justice] do so unwillingly and from want of power to commit injustice – we shall be most likely to apprehend that if we entertain some such supposition as this in the thought: if we grant to each, the just and the unjust, licence and power to do whatever he pleases, and then accompany them in imagination and see whither his desire will conduct each. We should then catch the just man in the very act of resorting to the same conduct as the unjust man because of the self-advantage (*pleonexia*) which every creature by its nature pursues as a good, while by the convention of law (*nomos*) it is forcibly diverted to paying honour to 'equality' (*to ison*) (*Rep*. 359c1–6, transl. Shorey)

'All nature naturally pursues *pleonexia* as good' contradicts the claim expressed by the wise men cited by Socrates in the *Gorgias* that 'proportionate equality (*isotēs*) has great power among both gods and men'. Both sides in the debate thus agree that nature is informative of how we should live our lives. But they disagree about whether nature supports *pleonexia* or *isotēs*. Is *pleonexia* or *isotēs* the more natural state of affairs? Are we going with or against the grain of nature when we attempt to live according to justice? The Calliclean and Thrasymachean view of human nature is strikingly similar to the view that we saw expressed by some of Thucydides' characters, even if, as we also saw, they draw different inferences from this view. As war in particular shows, human nature tends towards self-interest and gain much more than towards justice and fairness.

The psychology of the *Republic* offers the view that the just soul is the well-functioning soul and in that sense justice might be said to be the natural order of the soul. But the ability to attain and sustain justice in this world, particularly in war, may seem little more than a pious hope until justice has also been shown to be a force that can overcome the opposing forces (the 'necessities' in Thucydides) that the world and human nature have pitted against justice. What seems to be required is a much fuller grounding of the tripartite psychology in the world in the sense of understanding how

[15] Cf. Burnyeat (2000b).

the tripartite psychology works in relation to the aims, mechanisms and dynamics of nature. Only such a demonstration would give us reason to believe that justice can overcome injustice. Put differently, the question left by the *Republic* is whether the Socratic recommendation of the just life has sufficient grip in nature not to be uprooted by the test of war.

Timaeus demonstrates that it has. He shows us how the *kosmos* is organized with a view to goodness and therefore naturally tends to promote the good. Let me give a brief introduction to the fundamentals of Timaeus' cosmology which brings this point out. Many of these fundamentals will be explained more fully in subsequent chapters. The world was created by a divine craftsman, the demiurge. Being good he wanted his creation to be as good as possible (cf. ch. 4). To make it so, he looked towards an eternal and perfect paradigm when shaping the world. The world is good to the extent that it resembles this paradigm. Like all craftsmen he used material that he found prior to the creation. This material was disorganized and chaotic before he imposed rational order on it. The rational order is mathematical, in the first instance geometrical, since the four simple bodies are explained in terms of the combinations of different triangles (cf. ch. 6). Though the demiurge is powerful he had to work within the limitations imposed by his material. Certain features of the world are thus not to be explained by the rational design imposed by the demiurge but as necessary consequences of the materials (cf. ch. 5). These consequences are throughout the dialogue referred to as the principle of Necessity. Here is the passage which articulates the balance of power in the world between the rational design and Necessity:

> The generation of the *kosmos* was a mixed result of the combination of Necessity and Reason. Reason overruled Necessity by persuading her to guide the greatest part of things that become towards the best; in that way and on that principle this *kosmos* was fashioned in the beginning by the victory of reasonable persuasion over Necessity. If, then, we are really to tell how it came into being on this principle, we must bring in also the wandering cause – in what manner its nature is to cause motion. (*Tim.* 47e5–48a7, transl. Cornford with alterations)

In most respects, reason *has* persuaded Necessity to work for the best. None the less, Necessity remains a separate explanatory principle from Reason (cf. ch. 5). We see this most clearly in those cases where Necessity still refuses to cooperate with reason. For example, it would be better if our skulls could be both thin and strong since that would increase our life span and our sensitivity to impressions (*Tim.* 75a–c). However, the composition of bone does not allow for the combination of these attributes (cf. ch. 5 p. 105).

So necessity 'refuses' this rationally desirable state of affairs. Necessity thus puts constraints on the creation.

The passage quoted brings out the connection in the term '*kosmos*' between order and good order. As necessity has been persuaded by reason to operate *for the best*, we can say that a *kosmos* has been generated. A *kosmos* is not just an actual order; it is a normative order. By describing the *kosmos* as such you describe how things should be. As in the reference to *kosmos* in the *Gorgias*, it seems then that 'ought' can be derived from the way the *kosmos* 'is'.

Now if the *kosmos* as a whole is organized for the best through the rule of reason over necessity, then it seems that at least the environment in which human agency takes place is one that supports rationally determined good ends rather than 'random' necessity. However, the exact implications for human agency and social life might still seem unclear. For what goes on in human life might be thought to be sufficiently different from what goes on in the *kosmos* as a whole for the cosmic order to have any significance for human life. Sure, it might be argued, in the stars and the planets we see beautiful examples of rational order but that order does not extend to the world of human affairs which is governed quite differently. So, unless reason and necessity can be brought to bear on human life in the same way as on the *kosmos*, the study of the *kosmos* leaves us none the wiser about human life.

In reply to this worry, we need to notice just how consistently Timaeus brings his account down to man (as Critias put it at 27a6) by showing the same causal principles to be at work in the same manner in human beings as in the *kosmos* as a whole. In this way we really do get to see the relevance of Timaeus' training in astronomy to his understanding of human nature. Note first that both the *kosmos* itself and the animals within it are all called 'animals', *zōia*, suggesting a basic level of compositional similarity. Indeed, the lesser gods, who are given the job of creating man, do so by imitating the demiurge's creation of the universe. Like him, they take an immortal soul and place it in an appropriately shaped body. Timaeus figures rational motion as circular and less rational motion as rectilinear. Since the only motion that the cosmic soul undergoes is circular its body is spherical. The body of human beings, in contrast, is composed of an appropriately spherical head which houses the rational circular motions *and* an extended body that serves as a vehicle for the head when we move around (44d–45b). As we will see in ch. 7, the basic difference between the human body and the cosmic body is the fact that the construction of the human body makes us subject to the six rectilinear motions. Unlike the *kosmos* our rational

souls are *by necessity* subject to irrational motions coming through body. The result is that the motions of the soul become less circular. Timaeus compares the result of the immortal soul's embodiment with that of being placed in a turbulent river. This, we are told, is how the irrational affections come about:

> For a vehicle they gave it [the soul] the body as a whole, and therein they built on another form of soul, the mortal, having in itself dread and necessary affections; first pleasure, the strongest lure of evil; next, pains that take flight from good; temerity moreover and fear, a pair of unwise counsellors; passion hard to entreat, and hope too easily led astray. These they combined with irrational sense-perception and desire that shrinks from no venture and so of necessity compounded the mortal element. (69c9–d6, transl. Cornford)

In other words, the irrational affections are a necessary result of embodiment. As human beings, we are fundamentally rational because of our immortal soul but we are also subject to irrational forces through our body. The aim is to overcome the influence of the body and get our souls 'into shape', that is, into their original circular shape. The *kosmos* as a whole provides the paradigm for us since it is free from the linear motions that distort the rationality of our psychic motions. That is why observing the circular motions of the planets can help us get our souls into their proper shape. The challenge that we face as human beings is to reassert our rationality over the influence of necessity that arises through embodiment. In a sense, just as the demiurge created the *kosmos* by persuading necessity to work for a rational good, so we within our own sphere have to persuade the necessary affections that arise through the body to cooperate with reason.

But are there are any grounds for thinking that we can do this, or are we back with the Thucydidean picture of a human nature subject to necessity?[16] The answer comes in the third part of the dialogue where Timaeus introduces the tripartite soul. The tripartite soul is the lesser gods' way of ensuring maximal rationality in the human soul given the necessary affections that we must undergo as embodied. As I shall argue in chapter 7, together with the tripartite psychology Timaeus develops a physiology that shows how the body cooperates with our reason so as to ensure the greatest rational control of the soul within the body. The view that the *kosmos* is organized for the best is thus taken right down to the level of human psychology and physiology. The physiology is crucial given the view that

[16] Notice, incidentally, the similarity between some of the affections described by Timaeus and those referred to in Mytilenean debate: recklessness (*tharros* or *tolmē*), desire (*erōs*), hope (*elpis*) are prominent. In both cases these and suchlike are the necessary affections that tend to undermine justice.

the irrational affections arise through the body. By showing how the body is organized so as to maximize rational order we also see that the body may cooperate with reason and need not present an obstacle to rational life. Rather we find a close parallel between the rational order of the soul and the right order of the body in a way that suggests that the body itself can be seen as an instance of good order (*kosmos*) rather than simply and exclusively as a source of disruption for the soul. Given this teleology, the rule of irrational affections within the soul and likewise the rule of the disruptive motions within the body are unnatural in that they go against the order that naturally predominates. Given the teleology, the natural tendency of the soul and the body is towards rational order. Immorality, like physical disease, can be seen as a falling away from the proper and original working of the soul.

However, it might be objected that all we have seen is the natural tendency of rational order to rule at a very general level, we have not seen rational order figured in a way that directly bears on the question of justice and moral order. In reply, we need to keep in mind the close connection between the account of man and the story of punishment through reincarnation. At the beginning of the account of the creation of man, the souls that are to be embodied for the first time are told, as it were, the ground rules of human existence. Those souls that succeed in mastering their irrational affection will live a life in justice (*dikē*, 42b2), those who do not will live a life in injustice (*adikia*). The just character will eventually be allowed to escape further embodiment and live a happy life (*eudaimōn bios*), whilst the unjust will be reborn a woman and, if he continues in his badness (*kakia*), as a lower animal. Failure of rationality in the soul is directly translatable into injustice and *kakia*, success into justice and *sōphrosunē*.

The same explicit moral implications of rational order and irrational disorder are apparent in the description of the body. Timaeus describes the diseases (*nosoi*) of the body as follows:

> How diseases originate is, I take it, obvious to all. Given that there are four kinds of stuff out of which the body has been constructed – earth, fire, water and air – it may happen that some of these *unnaturally* (*para phusin*) increase themselves at the expense of the others (*pleonexia*). Or they may switch regions, each leaving its own and moving into a foreign region (*chōra*). Or again, since there is in fact more than one variety of fire and the other stuffs, it may happen that a given bodily part accommodates a particular variety that is not appropriate for it. When these things happen, they bring on conflicts (*staseis*) and diseases. For when any of these *unnatural* (*para phusin*) occurrences and changes take place, bodily parts that used to be cold become hot, or those that are dry go on to become moist, and so with

light and heavy, too. They undergo all sorts of changes in all sorts of ways. Indeed, it is our view that only when that which arrives at or leaves a particular bodily part is the same as that part, consistent, uniform and in proper proportion (*ana logon*) with it, will the body be allowed to remain stable, sound and healthy. On the other hand, anything that causes offence (*plēmmelēsēi*) by passing beyond these bounds as it arrives or departs will bring on a multiplicity of altered states, and an infinity (*pampoikilas*) of diseases and degenerations. (81e6–82b7, Zeyl transl.)

Disease is here figured in moral and political terms.[17] Bodily illness is caused by the interference of the four elements and their derivatives within the body. Each element has a proper region in which parts of the same element are arranged together. When the elements go beyond their proper region they cause illness. Illness is seen as the result of unnatural acquisitiveness (*pleonexia*) and figured as political unrest (*stasis*), health as a sort of internal friendship comparable to the friendship between rulers and ruled in Socrates' *politeia*.[18] The bad political constitution is reflected in bad physical changes (*staseis/polemous*) in the individual. Timaeus goes on to explain how we can restore the elements within us to order (*eis taxin*, e3) and prevent them from breeding wars (*polemous*) and diseases in the body (88e) by keeping the body in measured (*metriōs*, 88e2) motion. When each element in the body is put next to a friendly element (*philon para philon*, 88e6, cf. 83a) physical health is restored.

Within the body illness appears as a state of upheaval reminiscent in many ways of Thucydides' description of *stasis*. But the interpretation that Timaeus gives of this upheaval contradicts the diagnosis of the Corcyrean episode. Greed (*pleonexia*) is against nature (*para phusin*) and not in accordance with it (*kata phusin*). By reversing the natural processes by which likeness and friendship are brought about between the body's elements, greed stirs up *stasis* between them. *Stasis*, then, is not the result of unleashing natural tendencies but of reversing them.

The explanation of the diseases that the body inflicts on the soul echoes this explanation of the illnesses that the body inflicts on itself. This is unsurprising since psychic disease is a further result of a poor bodily constitution. The soul falls ill when the humours wander through the body, leaving their proper location, and transfer their wandering motion on to the motions of the soul (which as we have seen should be circular). The political language is again noticeable: just as we were told at 82a–b that the elements cause offence (*plēmmelēsēi*, 82b5) by passing beyond their proper bounds into foreign territory (*allotria chōra*, 82a3–4), thus bringing on a

[17] As Geoffrey Lloyd argued in a paper delivered to the Cambridge May Week seminar in 1993.
[18] Cf. *Tim*. 17d4–18a1: δικάζοντας μὲν πρᾴως τοῖς ἀρχομένοις ὑπ' αὐτῶν καὶ φύσει φίλοις οὖσιν . . .

multitude (*pampoikilas*) of diseases and degenerations, so we are now told that the humours by wandering in the body attack (*prospiptei*) the motions of the soul and bring about all manner (*poikillei*) of psychic disorders. The language of disease is that of military aggression. The repetition of *poikilia* reminds us of the *Republic*'s description of the 'beauty' of democracy, which is 'adorned (*pepoikilmenon*) with every species of human trait, as a cloak might be adorned with every species of flower' (557c5–7). The 'beauty', so called, of democracy is of the sort that might appeal to 'women and children' (c8), i.e. not rational men. Democracy and the democratic character are a pleasure-filled (*hēdeia*), anarchic and variegated (*poikilē*) constitution, whereas the ideal city and the philosophical character are rational, orderly and simple.

The topographies of Athens and Atlantis recall Timaeus' description of physical health and illness. Physical health consists in keeping each element within its proper boundaries. As maritime and land-based nations, Atlantis and Athens represent the elements of water and earth. Atlantis expands beyond its proper borders by bringing water to earth. The expansion is the result of the citizens' desire for luxury (115c–d). Similarly, the transgression of one element upon the territory of another in physical illness was described as *pleonexia*, where *pleonexia* was Socrates' explanation of war in *Rep*. 372e–373e. Wanting more than one's due is thus the origin of war both in the individual body and in the body politic. The expansion of Atlantis and its invasion of Athenian territory is a large-scale version of the *pleonexia* in bodily illness. The political arrangements of Atlantis allow *pleonexia* to take over (cf. *Crit*. 121b6: *pleonexias adikou kai dunameōs empimplanemoi*) in contrast to the institutionally secure justice (*dikaiosunē*) and moderation (*sōphrosunē*) of the Athenians. The Atlantids do not share the simple habitat of the Athenians: they have two springs of water, decorations of precious metals, and all sorts of luxury and adornments. The term *poikilos*, which as we saw was negatively associated with the diseases of the body and the disunited character of democratic man, recurs throughout the description of Atlantid material culture (cf. 111d6, 116b6, 118b7). A city which is fated through its topography and constitution to degenerate into greed and military aggression appropriately originated in Poseidon's desire (*epithumia*, 113d), in contrast to the love of wisdom that induced Athena to found Athens (109c).

Much more could be, and has been, said, about the topography of Atlantis.[19] What I hope to have shown briefly is that Critias' account of

[19] Cf. Vidal-Naquet (1981) and Otto (1997) 65–82.

the topography of Athens and Atlantis expresses the same principles of order and disorder as Timaeus' account of the healthy and the sick body. The organization of the city is subject to the same natural principles as the individual human being and the *kosmos*. Atlantis' *pleonexia* and attack on its neighbouring countries constitute the same sort of deviation from the natural rule of reason and friendship as does psychic or physical disease. In contrast, Athens' virtue is grounded in a natural order, which given cosmic teleology, tends to prevail over unjust aggression. Timaeus' account shows how the victory of justice over vice, Athens over Atlantis, is in accordance with nature, *kata phusin*.

To conclude: I have argued that the *Timaeus-Critias* can be seen as an extension of the concern in the *Gorgias* and the *Republic* with refuting the view that nature supports vice and undermines virtue. The *Timaeus* reads then as a refutation of the view that *pleonexia* is *kata phusin*. Given the teleological understanding of nature as working for the best, *pleonexia* is *para phusin*, against the natural order, *kosmos*. This is demonstrated on the level of the *kosmos*, on the level of the individual (both with respect to the soul and the body), and on the level of political geography. As the wise men said (*Gorg.* 508a), if you pay attention and know your geometry, the *kosmos* will show you that friendship and equality, not *pleonexia*, are a great power amongst gods and men. Nature by its teleological order supports the pursuit of justice and temperance over the pursuit of *pleonexia*. Necessity is subject to reason and goodness. To see the dialogue in this light is not to reduce the often complex and innovative cosmology to a projection of Socrates' ethical doctrine: if so, it would lose some of its evidential status for that doctrine.[20] Plato is partly interested in cosmology because it gives him, as he thinks, independent grounds for espousing a life of reason. Yet the study of cosmology is ultimately motivated by the concern with how to lead one's life. Moreover, it is from this point of view that we can best understand the unity of the dialogue. The study of the *kosmos* is particularly pertinent to the Atlantis story given the view that it is in war that human nature will show its true colours. By recasting the tripartite psychology of the *Republic* in the context of a larger theory of the dynamic principles that operate in nature, Timaeus has shown the way in which reason and justice

[20] Contrast Vlastos (1975) 29: 'The retrograde turn which Plato gives to cosmological inquiry when he converts so blatantly preconceptions of value into allegations of fact', cf. Gregory (2000) 5–6. It may, on the other hand, be to overstate the case to say that physical science is the 'handmaid' of ethics: 'Plato is not really interested in science for its own sake, particularly physical science. He sketches a picture of physical science so that it may serve as a handmaid for ethics and idealistic metaphysics', Graham (1991) 22.

by nature tend to overcome the irrational forces behind injustice and greed. The *Critias* breaks off in mid-sentence when Zeus is about to pronounce his punishment on the Atlantids: Zeus gathered all the gods in their most honourable dwelling. And from there he spoke his intention to make the Atlantids more moderate. We hear no more. But like the assembled gods we need only look at the *kosmos* to know the fate in store for Atlantis.

CHAPTER 2

The status of the Atlantis story

In chapter 1 I considered the aim of the dialogue as a whole and the connections between the Atlantis story and Timaeus' account of the cosmos. In this chapter I try to answer the question about the status of the Atlantis story as 'history' or 'fiction'. In the next chapter I go on to investigate the status of Timaeus' account.

From antiquity on, the status of Critias' account has been the subject of intense debate.[1] Are we as readers supposed to take the Atlantis story as 'real history'?[2] The dialogue invites us to raise this question but also to reflect on its terms. In this chapter I argue that the story should be seen as 'history' only in a special Platonic sense: it is a story which is fabricated about the past in order to reflect a general truth about how ideal citizens would fare in war. The story thereby provides a practical example of how virtue, understood along the lines of the *Republic*, would prevail in this world even in the most adverse of conditions.

As we have seen, the *Timaeus-Critias* tells two stories. One is an account of the war between ancient Athens and Atlantis; the other is an account of the creation of the *kosmos* and everything in it. Critias and Timaeus tell their stories in response to Socrates' request to be entertained in return for the entertainment he provided yesterday, which was an account of an ideal city very similar to that of the *Republic*. This, again, is how Socrates puts it:

> And now, in the next place, listen to what my feeling is with regard to the city which we have described. I may compare my feeling (*pathos*) to something of this kind: suppose, for instance, that on seeing beautiful creatures, whether works of painting (*graphē*) or actually alive but in repose, a man should be moved with

[1] Cf. Proclus, *in Tim*. 75.30–76.21.

[2] I take this question to be distinct from the one posed by Broadie (2001) as to whether the story is accepted as true relative to the 'dialogue world'. That is not to say that the reader might not or should not take his cue from the characters in the dialogue. For example, the reader might be guided by Socrates' response to Critias' truth claims at *Tim*. 26e2–5 (cf. below, p. 45).

desire to behold them in motion and vigorously engaged in some such exercise as seemed suitable to their bodies; well, that is the very feeling I have regarding the city we have described. Gladly would I listen to anyone who should describe in words our city contending against others in those struggles which cities wage; in how proper a fashion it enters into war, and how in its warring it exhibits qualities such as befit its education and training in its dealings with each several city whether in respect of military actions or in respect of verbal negotiations. (19b3–c9, transl. Bury with alterations)

The passage presents several puzzles as to how to understand the objectives of the *Timaeus-Critias*. Socrates wants to see his ideal citizens in motion rather than at rest. What does this mean? Proclus and Porphyry take the difference between being in motion and being at rest as equivalent to the Aristotelian distinction between actuality and potentiality.[3] Actualities perfect or complete (*teleioō*) potentialities. Aristotle takes virtuous character (*aretē*) to be an acquired disposition (*hēxis*) to do virtuous deeds (*praxeis*). The actuality that completes a virtuous character is action, *praxis*. So by asking to see the animal that was still (*hēsuchian de agonta*) in motion (*kinoumena*) Socrates means that he wants to see perfected in action the virtuous character that his education has given his citizens.

Though one perhaps should not press the similarity with Aristotle, this interpretation makes good sense of two points in Socrates' speech. The first is that Socrates expresses the concept of being in motion in terms of *praxeis en tois ergois kai en tois logois*. These actions should do justice (*ta prosēkonta apodidousan*) to the education and rearing of the citizens (*tēi paideiai kai trophēi*). It is therefore natural to take the citizens' actions as in some sense actualizing their education and rearing. The combination of words and action (*kata te tas en tois ergois praxeis kai kata tas en tois logois diermēneuseis*) suggests the example of a Homeric warrior who displays his *aretē* not only in the contest or *agōn* of arms but also in that of words.

The second point is that Socrates in the same speech goes on to say that he is looking for an encomium of the city (*tēn polin egkōmiasai*, 19d2). According to the *Rhetorica ad Alexandrum* demonstration and magnification of great deeds (*praxeis/erga*) is an essential part of the encomium.[4] In this sense, praising the citizens' *praxeis* would complete the encomium of the just city that Socrates might be said to have begun in the *Republic*.[5]

[3] Cf. fr. 7 in Sodano (1964).

[4] Cf. Pseudo-Aristotle, *Rhetorica ad Alexandrum*, 35 and Dover (1980) 12, who lists the four parts of the encomium as: (i) those blessings with which the subject is endowed independently of his own *aretē*; (ii) his *aretē*; (iii) his forebears; and (iv) his notable *erga* (*hosa . . . diepraxato*, 1.6).

[5] Socrates gives his account of the just city and its citizens in reply to Glaucon's request to αὐτὸ καθ' αὑτὸ ἐγκωμιαζόμενον ἀκοῦσαι (358d1–2). Glaucon proposes to praise (*epainōn*) the unjust life so

The two points complement each other in view of Aristotle's comment in *EN* 1.9 1099a4–8 that 'just as at the Olympic games the wreaths of victory are not bestowed on the most handsome or the strongest persons present but on those who enter the competition (for amongst these the winners are found), so also in life it is those amongst the *kaloi kagathoi* who act rightly (*hoi prattontes orthōs*) who carry off the prizes'. Just as an athlete needs to show his prowess in competition, so our guardians need to demonstrate their virtuous character in action if they are going to attract our praise.

Socrates draws a contrast between an animal wrought by painting or drawing and one which is really alive but motionless (*eite hupo graphēs eirgasmena eite kai zōnta alēthinōs hēsuchian de agonta*). I suggest that the analogy points back to the *Republic* and the question raised there about the realizability of the ideal city. At *Republic* 472d4–e5 Socrates explains that the ideal city should not be dismissed simply if the possibility of its existence could not be proven. To make the point he uses an analogy between his description of the ideal city and the drawing of an ideally beautiful man:

> 'Do you think that someone is a worse painter if, having painted a model of what the finest and most beautiful human being would be like and having rendered every detail of his picture adequately, he could not prove that such a man could come into being?' 'No, by god, I don't.' 'Then what about our own case? Didn't we say that we were making a theoretical model of a good city?' 'Certainly.' 'So do you think that our discussion will be any less reasonable if we can't prove that it's possible to found a city that's the same as the one in our theory?' 'Not at all.' (Grube transl., revised by Reeve)[6]

The point of Socrates' analogy is to abstract, for the time being, from the question of the realizability of the ideal city. Later in the *Republic* (498d–502c) Socrates argues that the ideal city can indeed be realized in this world. But at this stage he does not want the question of its realizability to interfere, since he is trying to describe what the *ideal* state would be like. In the *Timaeus* Socrates seems to refer to this analogy between a verbal imitation of his citizens and of beautiful animals 'wrought by painting/drawing' (*zōia*

that he in return can hear Socrates condemn it and praise (*epainountos*) justice (358d3–6). Socrates accepts the plan (358e1–2). This of course does not mean that what it means for Socrates to give an encomium will be the same as what it means for a non-philosopher, cf. Socrates' strictures on the encomium at *Symposium* 198b–199b and chapter 9 below, pp. 180–1.

[6] οἴει ἂν οὖν ἧττόν τι ἀγαθὸν ζωγράφον εἶναι ὃς ἂν γράψας παράδειγμα οἷον ἂν εἴη ὁ κάλλιστος ἄνθρωπος καὶ πάντα εἰς τὸ γράμμα ἱκανῶς ἀποδοὺς μὴ ἔχῃ ἀποδεῖξαι ὡς καὶ δυνατὸν γενέσθαι τοιοῦτον ἄνδρα; Μὰ Δί' οὐκ ἔγωγ', ἔφη. Τί οὖν; οὐ καὶ ἡμεῖς, φαμέν, παράδειγμα ἐποιοῦμεν λόγῳ ἀγαθῆς πόλεως; Πάνυ γε. Ἧττόν τι οὖν οἴει ἡμᾶς εὖ λέγειν τούτου ἕνεκα, ἐὰν μὴ ἔχωμεν ἀποδεῖξαι ὡς δυνατὸν οὕτω πόλιν οἰκῆσαι ὡς ἐλέγετο; Οὐ δῆτα, ἔφη.

kala . . . hupo graphēs eirgasmena, 19b5–6). Since Socrates in the *Republic* used the notion of a painted human being as a way of sidestepping the claim to represent reality, the natural way of taking the idea in the *Timaeus* that the beautiful animals are a product of painting is that these animals might not exist or might not be capable of existing. In contrast, the idea that they might 'also be really living' (*kai zōnta alēthinōs*) would suggest the situation in which the animals really did exist.

If the motionless citizens of the *Republic* might be taken either as a product of Socrates' account or as really living, then there are also two ways in which his ideal citizens could be shown to be in motion. If they were merely fictive they could be shown in motion as the characters in a fictional motion picture, or if they were really alive they could be shown to be in motion as real people, like the people portrayed in a documentary. Nabokov's novel *Laughter in the Dark* illustrates how Socrates' request might be satisfied by a fictional work. The protagonist, Albinus, an art historian, develops the desire to see the characters of an old painting such as Breugel's in motion:

> It had to do with colored animated drawings – which had just begun to appear at the time. How fascinating it would be, he thought, if one could use this method for having some well-known pictures, preferably of the Dutch School, perfectly reproduced on the screen in vivid colors and then brought to life – movement and gesture graphically developed in complete harmony with their static state.[7]

From his admiration for the old masters Albinus had formed the desire to see their paintings turned into a movie.[8] Compare Socrates' desire to see his ideal citizens as wrought by a painting/drawing in motion. Albinus wants to see his characters brought to life with their 'movement and gesture . . . in complete harmony with their static state'. Similarly, Socrates wants to see his citizens performing actions that 'do justice (*ta prosēkonta apodidousan*) to their education and rearing (*tēi paideiai kai trophēi*)'. Albinus does not imply that the characters in the old painting will become any more 'historical' by being shown in motion. Motion may impart a greater degree of 'realism' to a painted character than stillness, but a moving picture if it is based on a fictional motionless picture will still be the invention of the artist.

In contrast, Critias offers an allegedly historical account (i.e. a 'documentary') of Socrates' ideal citizens in the guise of the real ancient Athenians (*tous alēthinous progonous hēmōn*, 26d2–3). By saying that the ideal citizens

[7] Quoted from the New Directions edition, New York 1991, 8.

[8] Incidentally, this project was later realized in the vignette of Van Gogh's 'Crows' in Akira Kurosawa's 1990 film *Dreams*.

either may just be a drawing or may really be alive Socrates has allowed for such an account but has not insisted on it. Since Socrates' primary wish was to hear an account of his citizens in motion the question of its fictionality or historicity is secondary. By asking to see his ideal citizens in motion Socrates has not asked for a greater degree of historicity than he did for the account of his ideal citizens as motionless in the *Republic*. So even if Critias' account turned out to be a fiction, not history, that would not defeat the purpose of the account from *Socrates'* point of view, as long as the account adequately showed his citizens in motion, i.e. in a way that corresponded with their education in the *Republic*.

In the *Republic* relationship between history and fiction is complex. At *Republic* 382d1–d3 Socrates suggests that the stories we tell about the ancient past should be taken as useful inventions:

> Also in the fables (*en muthologiais*) of which we were just now speaking, owing to our ignorance of the truth about antiquity, we liken (*aphomoiountes*) the false [or 'falsehood': *pseudos*] to the true as far as we may and so make it edifying. (Shorey transl.)

The passage occurs in a context where Socrates distinguishes good from bad 'lies' or stories (*pseudē*). The stories we tell about the past should be as close to the truth as possible. But since we construct such stories precisely in the absence of historical knowledge, the truth that we liken our stories to cannot itself be historical. It must be another sort of truth. In the case of the stories about the past that involve the gods the truth is how the gods would behave, given that they are good (379b). The first line of the passage quoted ('the construction of ancient events which we were talking about just now') refers back to 380a, where it was said that if we attribute to the gods the punishment of Niobe or of the participants of the Trojan War we have to make it clear that the punishment happened for the benefit of those punished. In other words, the stories have to represent the actions of the gods in accordance with the truth about them, namely, that they are good and can therefore only do good things. Given that they are good, a story that represents the gods as doing evil, or lying or changing in any way must be wrong. We can say that such a story must be wrong, not because we happen to have any historical knowledge of what the gods have been up to but because we know what the gods *could* not do if they are perfectly good. We can deny, for example, that the castration of Ouranos ever happened not because of what we know about the past as such but because of what we know generally to be the truth about divine agency. The purpose of telling stories about the past actions of the gods is to illustrate this truth.

It is not to report any historical knowledge about particular divine acts, of which we have none.

Christopher Gill has argued against taking Socrates' analysis of stories to be an account of what we would today think of as fictions.[9] One important aspect of the modern concept of fiction, according to Gill, is the idea that fiction has no straightforward truth-value. In contrast, it is an important part of Socrates' critique of traditional story-telling that the beliefs expressed in them are false. However, as Gill concedes, one can accept that it is important aspect of Socrates' account that *muthoi* do have truth-values whilst also maintaining that there are aspects of Socratic *muthoi* which can usefully be thought of in terms of a notion of fiction that we would recognize today.[10] For Plato stories are fictional in one important sense of the word: they are created or fabricated. It might of course be said also of accounts (*logoi*) that we would not call *muthoi* that they are created or fabricated. However, what characterizes the *muthos* is that it has been created without any regard for particular facts of history. The story of Niobe was fabricated without reference to any historical information. It seems therefore that there is one important aspect of Socrates' analysis of stories (*pseudē*) that does line up with our modern use of fiction, namely the way in which these stories contrast with what we would recognize as factual accounts. Platonic *muthoi* may of course still count as 'factual' in so far as they represent *general* truths about the nature of the gods and good men. No doubt Socrates would take such truths to be more significant facts than any particular historical facts, and the manner in which the details of *muthoi* are fabricated in the image of the general truths reflects how little importance Socrates attaches to historical facts as compared with the significance of philosophical truths.

For Socrates, finding the sort of stories we should tell about the past actions of human beings is more complicated than deciding on which stories to tell about gods and heroes. It is not at first clear why this should be so, for one might think that a good human being is one that does the sort of thing that a god would do and avoids doing the sort of thing a god would not do. However, Socrates explains to Adeimantus why 'we can't evaluate this kind of writing [that is, writing about human beings] at the moment' (392a10–11) as follows:

[9] Gill (1993).

[10] Cf. Christopher Rowe's comment: 'While I accept many of Christopher Gill's (Gill (1993)) strictures against too easy an attribution to Plato of modern concepts of fiction, it still seems to me that such a contrast [sc. between 'the fictional' and '*logos*, or whatever term might be used to denote the opposed category of the non-fictional'] is fundamental to Plato's complex deployment of the notion of *muthos*', Rowe (1999) 263, n. 1.

'Because I presume we are going to say that so it is that both poets and writers of prose speak wrongly about men in matters of greatest moment, saying that there are many examples of men who, though unjust, are happy, and of just men who are wretched, and that there is profit in injustice if it be concealed, and that justice is the other man's good and your own loss; and I presume that we shall forbid them to say this sort of thing and command them to sing and fable the opposite. Don't you think so?' 'Nay, I well know it,' he said. 'Then, if you admit that I am right, I will say that you have conceded the original point of our inquiry?' 'Rightly apprehended,' he said. 'Then, as regards men that speech must be of this kind, that is a point that we will agree upon when we have discovered the nature of justice and proof that it is profitable to its possessor whether he does or does not appear to be just.' 'Most true,' he replied. (392a13–c5, transl. Shorey)

The 'original purpose of our inquiry' was to show how it is more advantageous for someone to be just than unjust. This is the conclusion we want to establish but before we can do so we need to understand what justice is. For only then can we see what it is about justice that makes it advantageous to its possessor. But why do we need a separate account for justice in order to portray human beings benefiting from their goodness when we did not need such an account in the case of the gods and heroes? The short answer would seem to be that since the gods are by definition both good and *eudaimones* the problem of demonstrating how *eudaimonia* follows from their justice (which is the very point on which Socrates has been challenged) simply does not arise.

By *Republic* x Socrates has accounted for the nature of justice and argued that justice makes one happy. But rather than saying which stories we should then tell about human beings he seems to say that we should not produce imitative poetry at all. This comes as something of a surprise since, as we saw, Book iii seemed to say that poetry was acceptable if it imitated the actions of good men and showed how they were rewarded for their virtue.[11]

[11] There is a problem here with the notion of *mimēsis*. In Book iii the term seems to be used for a particular sort of poetry in which the author assumes the voice of his subject (e.g. when Homer speaks in the voice of Chryses, *Rep*. 392d–393b), whilst in Book x it is used quite generally for the imitation (in words or pictures) of a particular thing or person which is produced in the absence of any knowledge of that thing and which achieves its effect only in the absence of any knowledge in the audience. I take it that the general reference to Homer (who as an epic poet would use both *mimēsis* and *diēgēsis*, cf. 392d) and the tragedians means that the poetry discussed in Book iii is considered imitative from the point of view of Book x, whether that poetry employs *mimēsis* (in Book iii's sense) or *diēgesis* as long as it represents its object in a way that shows no knowledge of its subject-matter. By 'imitative poetry' I shall from now on refer to the poetry so described in Book x on the assumption, however, that the poetry of Homer and Hesiod criticized in Book iii (which clearly does not show any knowledge of the gods and heroes) could also be understood as imitative in this sense. For a full account of the relationship between Book iii's and Book x's concepts of *mimēsis* see Burnyeat (1997b) 289–300.

The question was not whether to compose imitative poetry at all but how to compose imitative poetry properly. In Book X, on the other hand, imitative poetry has seemed to some scholars to be rejected as such:[12] imitative poetry necessarily deals with what is far removed from the truth and so necessarily cultivates the wrong part of the soul. There are different strategies for lessening the apparent tension between the two books. One is to point out that Book X does admit into the city at least the sort of poetry that praises gods and good men (607a3–5): 'you should know that the only poetry we can admit into our city is hymns to the gods and encomia of good men'. So it may be that imitative poetry need not *necessarily* represent a bad character though it is its natural tendency to do so.[13] Socrates says that it is easier (but not necessary?) for poets to imitate an excitable emotional character because such a character admits of 'multi-faceted' imitations (*mimēsin poikilēn*, 604e1, cf. *poikilon ēthos*, 605a5). A rational and quiet character, in contrast, is much more difficult for the poet to imitate (but not impossible?) and for the theatrical audience to understand, since 'the experience (*pathou*) is alien (*allotriou*) to them' (604e5–6). Perhaps one can say that poetic techniques naturally lend themselves to the representation of a multi-faceted character, just as an artist's full palette of colours lends itself to the painting of a many-coloured portrait. However, this does not mean that the poet *has to* represent a multi-faceted character any more than the artist has to make use of all his colours.

In the *Timaeus* (19d-e) Socrates asks for just the kind of encomium allowed for in *Republic* X: an encomium of virtuous men in action. His request is met with two *logoi* that are both in some sense imitative. Critias describes both his and Timaeus' accounts as 'imitations' (*mimēsis*, *apeikasia*, 107b5), perhaps echoing Timaeus' wish that *his* account be received as a mere *eikōs logos* or *eikōs muthos* of an *eikōn* of an intelligible paradigm (*Tim*. 29d). Both *logoi*, then, are presented to us as imitations of a sort.[14] The *Timaeus-Critias* invites us to draw comparisons with the *Republic*. So we should ask: if the accounts of Timaeus and Critias are imitative,

[12] For a critique of this view see Burnyeat (1997b) 289–305.

[13] Note the phrasing at 605a2–6: 'It is clear that the imitative poet isn't by nature related to such a [*sc*. rational] part of the psyche (Ὁ δή μιμητικὸς ποιητὴς δῆλον ὅτι οὐ πρὸς τὸ τοιοῦτον τῆς ψυχῆς πέφυκε) nor is his art of the sort to please it, if he wants to please the many, but rather he is naturally related to the excitable and varied character because it is easier to imitate.'

[14] They might also qualify as 'poems' of a sort. So Socrates at *Crit*. 108b4–5 compares Timaeus and Critias to poets in a theatre. In the taxonomy of the *Sophist* 265a–267b the imitative art (*mimētikē*) is a species of the productive or 'poetic' art (*poiētikē*); cf. Burnyeat (1997b) 299, who argues that the *Sophist* passage is an analysis of the notion of *mimēsis* in the *Republic*. As imitative, the *logoi* of Timaeus and Critias might also count as 'poetic' in the wider *Sophist* sense.

how, if at all, do they avoid the strictures on the imitative arts imposed by *Republic* x?

The invitation to the reader to make comparisons with *Republic* x is reinforced by the analogy between Timaeus' and Critias' accounts and paintings (*Crit.* 107b5–d6). Already Socrates had suggested, as we saw, that the account of the ideal city was like a painting and he now wanted it put in motion. In *Republic* x painting was used as the star example of a certain sort of *mimēsis* to be disallowed in the city.[15] The painter (not necessarily deliberately) appeared to the uninformed to make knowledgeable imitations of his subject matter.[16] He would paint a bed in a way which would make the ignorant think that the painter had the carpenter's knowledge. The painter would convey seductively misleading information and images. The *Timaeus-Critias*, in contrast, goes to great lengths to emphasize that the accounts or imitations given will be produced by speakers with expert knowledge and experience and that they will be judged by a similar kind of audience or spectator.

So Socrates considers three kinds (*genē*) of producers of *logoi* as potential encomiasts: the poetic kind, the sophistic kind and 'your kind', that is, the kind of philosopher-statesman to which Timaeus, Hermocrates, and Critias supposedly belong. His dismissal of the actual poets, past and present, is not based on their being imitators as such but on their not having the required background (*trophē*):

> I have come to hold the same opinion [i.e. that they cannot praise Socrates' citizens sufficiently] about the poets past and present, not because I in any way disrespect the poetic tribe (*outi to poiētikon atimazōn genos*, 19d5), but it is clear to all that the imitative people (*to mimētikon ethnos*) will imitate most easily and best the things with which it has grown up, but what happens outside the experience of each person he finds difficult to imitate well in deeds and even more so in words. (*Tim.* 19d3–e2)

Plato's use of *ethnos* and *genos* is worth noting here. Though he may be using the two terms for stylistic variation, the two terms are also commonly used to mark the difference between a nation (*ethnos*) and a tribe (*genos*).[17] If Plato has this distinction in mind, the *poiētikon genos* (which includes poets past and present) constitutes a subclass of the *mimētikon ethnos*, which possibly covers a wider range of imitators. The suggestion that the mimetic nation has a wider extension than the poetic tribe also makes good sense of

[15] Though 603b9–c2 suggests that we cannot be sure that all the features of imitative painting carry across to imitative *poetry*.

[16] On the painter's deception see Burnyeat (1997b) 302–5.

[17] LSJ *s.vv.*

the point that imitation in deeds, as well as imitation in words, is referred to, whilst poets are not known for their imitation in deeds. A necessary condition of good imitation both in words and in deeds is experience (*trophē*) of the subject-matter. The passage thus suggests that whilst all known poets would fail as imitators of Socrates' citizens because they have no experience of such characters, there might be another sort of imitator (included in the more general class of the *mimētikon ethnos*) who does have the relevant experience and therefore could imitate the citizens. Socrates dismisses the sophistic kind since, even though it is experienced (*empeiron*) in many fine speeches, the Sophists' lack of affiliation to a *polis* makes them unable to grasp (*astokhon*) the sort of character who is both political and philosophical and the sort of things he would say and do in a war. In contrast, 'your kind', that is, the kind of Timaeus, Critias and Hermocrates, is the only one which has the required experience of both statesmanship and philosophy. Not only did Timaeus grow up in the proverbially well governed Locris, where he has held all the important public offices, but he has also reached the height of all philosophy (20a1–5).[18] Many witnesses can testify to the adequacy of Hermocrates' nature and upbringing (*trophēs*) for the task (20a8–b1). Meanwhile, the Athenians are said 'all to know that Critias is a "layman" (*idiōtēs*) in none of the matters about which we speak' (20a6–7), which suggests that Critias himself has held public office, as well as having had some philosophical experience.[19] The speakers are thus elected to perform the encomiastic *logos* in so far as they have experience of both philosophy and statesmanship. Unlike the poets, then, the three speakers seem to have exactly the sort of experience that is required if they are to be good imitators of Socrates' citizens.

The case of Solon illuminates the important relationship between imitation and experience. Critias received the Atlantis story from Solon through his grandfather, also named Critias. When Critias the younger was a boy, he and his peers chose to perform Solon's poetry at the festival of Apatouria for its novelty. On one such occasion Critias the elder tells Ameinandros, who has praised Solon for being the 'freest (*eleutheriōtaton*) of all the poets' (21c2), that Solon would have been as famous a poet as Hesiod and Homer if he had completed the story he brought back from Egypt, that is, the

[18] I take the perfects at 20a4,5 (μετακεχείρισται, ἐλήλυθεν) as stressing the (relevant) experience that Timaeus' past accomplishments have given him now.

[19] There may be a play here on the saying reported by the Scholiast on the *Timaeus* that Critias, the tyrant, was a layman or *idiōtēs* amongst philosophers and a philosopher amongst laymen. If the Critias of the dialogue is to be associated with the tyrant, we may therefore detect a sting in Socrates' compliment. For different views of the identity of Critias, cf. Cornford (1937) 1–2, Welliver (1977) 50–57.

Atlantis story. Instead, he was forced to abandon the project in order to attend to political events in Athens and to write poetry as a sideline. The comparison of Solon with Homer is interesting in the light of *Republic* x 599b–e, where Socrates argues that if Homer had had any knowledge of the subjects he undertook to expound on – warfare, tactics, politics, and human education – there would have been at least one city which attributed political improvements to him,[20] in the way, for example, that the Athenians cite Solon. This point rides on the back of the statement that anybody who knew how to produce both real things and imitations would put far more effort into producing real things (599a). In other words, those who can, do, those who can't, write poetry. If we bring these comments to bear on the *Timaeus*, it seems that Solon's failure to develop as a poet reflects the fact that the Athenians thought (not necessarily correctly) that he possessed useful knowledge. It was the demand for this knowledge that prevented him from becoming a full-time poet. Solon's failure to develop as a poet seems, perhaps paradoxically, to illustrate the point that he was thought to have knowledge, which is what is required to write good poetry, and such a person is far too important to be allowed to spend his time writing poetry.

In *Republic* x the deceptiveness of a painting depended not just on the painter's lack of knowledge but also on the spectator's ignorance. In contrast, the speeches in the *Timaeus-Critias* are made by experts. If the speeches are imitations they are, emphatically, knowledgeable imitations. However, the emphasis on experience extends also to the audience, who, of course, partly overlap with the speakers. Timaeus thus refers to the education (*paideusis*, 53c2) that allows his audience to follow his geometrical demonstration. Critias, in his development of the painting analogy, underlines that their speeches are judged by experience:

> The accounts given by us all must be, of course, of the nature of imitations (*mimēsin*) and representations (*apeikasian*); and if we look at the portraiture of divine and human bodies as executed by painters, in respect of the ease and difficulty with which they succeed in imitating their subjects in the opinion of onlookers, we shall notice in the first place that as regards the earth and mountains and rivers and woods and the whole of heaven, with the things that exist and move therein, we are content if a man is able to represent them with even a small degree of likeness; and further, that, inasmuch as we have no exact knowledge about such objects, we do not examine closely or criticize the paintings, but tolerate, in such cases, an inexact and deceptive sketch. On the other hand, whenever a painter

[20] Cf. *Ion* 541d.

tries to render a likeness of our own bodies, we quickly perceive what is defective because of our constant familiar acquaintance (*sunoikon katanoēsin*) with them, and become severe critics of him who fails to bring out to the full all the points of similarity. And precisely the same happens, as we should notice, in the case of discourses (*logous*). (107b5–d6; Bury transl.)

All the speeches, according to Critias, will be judged by reference to the audience's experience. Critias' particular difficulty, he claims, is that the judges will have more experience of his subject-matter than they had of Timaeus'; and so, he fears, they will judge his 'painting' more harshly than that of Timaeus.[21] Critias' (perhaps rather devious) plea that special allowances be made for his imitation trades on the more general insistence in the dialogue that the speeches reflect experience and knowledge. We are a far cry here from the company of 'children and foolish men' (*Rep*. X 598c2) who, looking from afar at a painting of a carpenter made by a painter with no knowledge of carpentry, uncritically form the belief that this is what a real carpenter looks like.

In the *Timaeus-Critias* the speeches represent expertise in politics and philosophy, rather than the ignorance of the traditional poets, and they are performed under the critical scrutiny of fellow philosopher-statesmen. In retrospect, it seems that it may have been in order to open the door to this alternative kind of imitative speeches that Socrates apparently allowed for a *mimētikon ethnos* of wider scope than the *poiētikon genos* of present and past poets. The message was that imitation need not be bad, *if* it is based on knowledge.

So far, I have argued that the objective of the *Timaeus-Critias* is to tell a knowledgeable story about the deeds of virtuous men of the sort that the *Republic* would sanction. The story is fictional history in the sense that the particular events recounted are made up as a likeness of the truth about human goodness and its rewards, just as the stories we tell about the gods are to be made up according to our conception of their goodness. The story can be seen as a form of *mimēsis*, but one that, in so far as it is delivered by knowledgeable people to knowledgeable people, is different from that rejected in *Republic* X.

But how does Critias' own portrayal of the Atlantis story fit in with such a notion of philosophical story-telling? His denial that the story is *muthos* might suggest that we should take it as 'real history' and not as the sort of fictional but truth-based 'history' envisaged by Socrates in *Republic* III.

[21] That Timaeus is included in the analogy with painting is clear from παρὰ πάντων ἡμῶν, 107b6.

We need then to look more carefully at Critias' denial that his story is *muthos* in order to assess the extent, if any, to which the Atlantis story can be seen as an example of fictional history. Critias claims that his account is not subject to the usual Greek ignorance of the past because it comes from Egypt. His account has the sort of *akribeia* that we would normally expect, at least on a Thucydidean conception of historiography, only from recent history and not from ancient history. The story of Niobe (referred to also in *Rep*. 380a, cf. above p. 28) is held out by the Egyptian priests as an example of how the Greeks tell stories (*muthologein*, 22b1) in the absence of historical knowledge (22a–b). Another example is the story of Phaethon, who borrowed his father's, the sun god's, chariot and scorched the earth before being destroyed by the thunderbolt of Zeus. This story, the Egyptians say, is spoken in the form of a *muthos* by the Greeks, whereas the truth is that the event referred to by the story was one of the regularly occurring conflagrations of the earth brought about by planetary parallaxis (22c–d). The Egyptian explanation of the truth behind the *muthos* seems to be echoed by Critias' statement that he will transfer what was said by Socrates 'as in a *muthos*' to the realm of truth. Critias' historiography, like the Egyptians' natural philosophy, apparently replaces the mythical by a more exact literal truth.

In both cases, however, it seems that the Egyptians or Critias would have to grant the 'mythical' some sort of truth. Critias' account is after all based on Socrates' *muthos* in the sense that Critias takes over Socrates' ideal citizens as they have been educated by him. 'Lucky coincidences' aside, Critias is not just relaying a story that happens to match that of Socrates, he is telling the history of Socrates' citizens in action, though these are now identified as Athenians. In the case of the Egyptians' response to the Phaethon story, one might say that the scientific truth behind it does not so much refute the *muthos* of Phaethon as translate it into a different form (*schēma*), a form in which it is explained as an instance of a more general scientific phenomenon. Similarly, Critias cannot simply reject Socrates' *muthos*, since it is in this *muthos* that his allegedly historical characters were educated (cf. 27a9–b1: *para sou de pepaideumenous diapherontōs autōn tinas*). Rather, like the Egyptians' retelling of the Phaethon story, Critias is now retelling the story about Socrates' citizens as a true account in the sense that it is now about supposedly historical entities, the ancient Athenians.

The identification of Socrates' ideal citizens with the ancient Athenians is the key move, then, in Critias' claim to be presenting an historical account. It is worth paying close attention to the manner in which the move is made in the following passage:

The citizens and the city which you [sc. Socrates] narrated to us yesterday as (*hōs*) in a *muthos*, having transferred it to the real world (*epi talēthes*), we shall posit (*thēsomen*) as (*hōs*) being that city here and the citizens whom you were considering we shall assert (*phēsomen*) to be those real (*alēthinous*) forefathers of ours, whom the priest mentioned. They will fit in every respect and we shall not speak out of tune when we say that they were the men who existed at that time. (26c7–d5)

Critias completes the point at 27b1–6:

[it seemed to us] that I should make them [sc. the ideal citizens] citizens of this city here [Athens] having brought them before you as (*hōs*) before jurors according to Solon's account and law on the grounds that (*hōs*) they were the Athenians at that time, who went unnoticed until the report (*phēmē*) of the ancient writings informed us about (*emēnusen*) them, and henceforward make our speeches (*logous*) about citizens on the premise that (*hōs*) they already are real Athenians.

Both passages rely heavily on *hōs* constructions. On each occasion I have tried to translate *hōs* neutrally but all of its occurrences in the two passages might also be translated 'as if'.[22] Both passages construct the transfer of Socrates' citizens into the real world as dependent on speech acts ('we shall posit', 'we shall say'). In the second passage, the speech acts are taken specifically from the law courts. Like jurors, we have decided to grant citizenship to the ideal citizens on the basis of the (spoken) report (*phēmē*) of the old writings and the account and law of Solon. The little we know of Solon's citizenship laws points to: (a) the granting of political rights to the so-called *thētes*; and (b) the granting of citizenship to exiles.[23] If either of these is referred to, the point *may* be that, just as Solon extended citizen rights to those who were previously not considered Athenians, so we shall now include people as Athenian citizens who were not previously (e.g. in the *Republic*) thought to be so. The language suggests that the ascription of Athenian citizenship to Socrates' ideal citizens is, as one might put it, the result of an illocutionary act: like jurors presiding over a case we make them citizens by saying that they are so. The language wavers between, on the one hand, a view of the speech acts as simply restoring them to their rightful status of real Athenians that they always had, and, on the other, a view of them as making the ideal citizens *into* Athenians by bestowing citizenship on them by a quasi-judicial act. The reference to Solon's law rather suggests that there is an expansion of citizen rights, that is, a creation of *new* citizens rather than a recognition

[22] Thus the Thomas Taylor translation, Taylor (1944) 106. Cf. also P. Murray (1999) 260 and Rowe (1999) 271.
[23] Cf. Stanton (1990) 65–66.

of old ones.[24] The passage, in other words, is carefully composed to allow for a reading that takes Critias' history as constructed in the act of telling it.

Another question that may make one suspect that Critias' history is constructed for the occasion is the question of why, given that Plato makes Critias identify the ideal citizens with allegedly historical characters, these characters are then identified as *Athenians* rather than, say, Spartans or Cretans? The identification of the citizens with Athenians creates an interesting point of contact with the *Menexenus*.[25] On Nicole Loraux's reading, the *Timaeus-Critias*, like the *Menexenus*, presents a pastiche of an encomium of Athens (as represented by the funeral orations of Thucydides, Lysias, et al.).[26] The encomium presents an idealized version of history seen through Athenian ideology. The *Menexenus* parodies the obfuscation both of value and fact produced by the funeral oration. If Loraux is right, then the identification of the ideal citizens with the ancient Athenians may work as a distancing device in the *Timaeus*. If we are sceptical of the tendency of Athenians to idealize their past, we shall be wary of the supposition that the ideal citizens of old were Athenians. However, Socrates was not objecting in the *Republic* to the invention of stories about the past but rather to the values that are currently represented by such stories. So Plato's point in making the story about the ideal citizens as Athenians may not really be to reject the tendency to invent idealized history as such. Rather, by substituting the usual political role models for the ideal citizens of the *Republic*, he is criticizing the particular ideals that the Athenians use their past to reflect. In presenting the Atlantis story as the story of Socrates' ideal citizens Plato redeploys Athenian encomiastic history in the service of a new ideal different from the Athenian.[27] We may recall in this context that the first reason that Socrates states for accepting Critias' account as meeting his needs is that the account will serve as a proper praise of Athena on the day of the Panathenaia (cf. 26e3 with 21a2).[28] However, the Athena that Critias' story celebrates is a philosopher-warrior goddess (that is, a guardian character) rather than an Athenian democratic goddess.[29] Just as Plato appropriates

[24] Cf. also the specific reference at *Tim*. 21b2 to the *Koureōtis* of the Apatouria, the day on which young boys were entered as members of a phratry.

[25] Cf. Rowe (1999) and Otto (1997).

[26] Cf. Loraux (1986) 296–304; cf. also Morgan (1998).

[27] As Rowe puts it, 'Instead of serving to reinforce present aims and values, myth becomes a means of reconsidering and replacing them': Rowe (1999); for a different gloss on the effect of Plato's redeployment of Athenian encomiastic history see Morgan (1998).

[28] On the identification of the festival, cf. Cornford (1937) 5.

[29] 24c7–d1: φιλοπόλεμός τε καὶ φιλόσοφος ἡ θεὸς οὖσα . . .

the Athenians' forebears in the service of a new set of philosophical ideals, so he appropriates their patron goddess.

We may ask, in a similar fashion, why it is through the *Egyptians* and their meeting with Solon that we are supposed to have received the Atlantis story. The Egyptians are in one sense the perfect source of supposedly ancient history in so far as, according to Herodotus (2.15), they were commonly thought of as the oldest nation, or at least one of the oldest nations, on earth. According to Critias, the Egyptians are not the oldest nation as such (that honour goes to the Athenians), but they are the only known nation whose culture has survived intact *ab initio*. Herodotus says that the Egyptians were the first nation to develop the art of writing, through which they have kept records of ancient events.[30] According to Critias, the Egyptians are the oldest literate nation, again only in the qualified sense that they, unlike the Athenians, have an unbroken tradition of literacy.[31] In other words, though the Athenians are a nation of greater antiquity and cultural achievement, the Egyptians are a nation of greater *uninterrupted* civilization. Critias thus reinterprets the Herodotean *topoi* about Egypt's antiquity so as to give the ultimate cultural seniority and superiority to Athens.

In the *Laws*, the Athenian Stranger professes admiration for certain Egyptian institutions, such as their rules against changing choreography and their emphasis on mathematical education (656d–657a). However, he immediately qualifies this praise by saying that there are also many bad things in Egypt (657a5). Indeed, at *Laws* 747b8–c8, the Athenian Stranger says that:

> all these subjects of education [sc. economics, politics and all the crafts (*technas*) but especially arithmetic] will prove fair and fitting, provided that you can remove illiberality (*aneleutheria*) and love of money (*philochrēmatia*) by means of other laws and institutions from the souls of those who are to acquire them adequately and to profit by them; otherwise you will find that you have unwittingly produced the so-called 'knavery' (*panourgia*) instead of wisdom (*sophia*). Examples of this we can see today in the effect produced on the Egyptians and Phoenicians and many other nations by the illiberal character of their possessions and their other institutions. (Transl. Bury)

[30] Cf. Herodotus 2.77.1: μνήμην ανθρώπων πάντων ἐπασκέοντες μάλιστα λογιώτατοί εἰσι μακρῷ τῶν ἐγὼ ἐς διάπειραν ἀπικόμην, on which Lloyd (1976) 330 comments: 'Here μνήμη = *memoria* in the sense of history'.

[31] Cf. *Tim*. 22e–23b. The point that the Athenians were literate at the time of the Atlantis war can be inferred from the statement that 'your people and the others are but newly equipped, every time, with letters and all such arts as civilized states require; and when, after the usual interval of years, like a plague, the flood from heaven comes sweeping down afresh upon your people, it leaves none of you but the unlettered and uncultured . . .' (*Tim*. 23a5–b1, transl. Bury).

The Stranger goes on to suggest that part of the reason for the unfortunate effect that the Egyptians' education has on them may be the influence of their natural environment on their character (747d–e).[32] In the *Republic*, too, the Egyptians and the Phoenicians are held out as examples of *philochrēmatia*, corresponding in this respect to the desiderative part of the soul, just as the Greeks' *philosophia* corresponds to the intellectual part and the Scythians' combativeness to the spirited part (*to thumoeides*) (435e-436a). We notice in this context that the Egyptians, like the Phoenicians, are known as traders, a profession with which typically comes a reputation for greed and deceptiveness.[33] Plato is building on a stereotype of the Egyptians as cheats and liars attested already in Aeschylus,[34] Aristophanes,[35] and Cratinus.[36] Though the Egyptian education as such is praiseworthy, its effect on the Egyptian character is to render them knavishly clever rather than virtuously wise.[37]

In these passages, then, deviousness rather than wisdom seems to be the hallmark of the Egyptian character. It does not have the intellectual virtue of the intellect (*sophia*); rather, their intellect is subservient to their desiderative part (*epithumia*), attempting through the acquisition of money to satisfy the desires of the body. Such a character is the opposite of the philosophical character, which loves the truth.[38] So we should expect a story told by an Egyptian to be deceitful. Making the Egyptians the source of the Atlantis story might then be another way of Plato's advising us not to take the account *au pied de la lettre*.

However, as we know from *Republic* II, there are good and bad lies (*pseudē*). Whereas Hesiod's story of the castration of Ouranos is a bad lie, the famous myth of the three metals in *Republic* III is a good lie, because it

[32] In the *Timaeus*, in contrast, the same environment is stated as the reason why we should trust the Egyptians' information about the past (22d).

[33] Homer, *Od.* 14.288–9 with *Od.* 15.15–17 (quoted by F. Meijer and O. van Nijf (1992) 3–14).

[34] Fr. 373: δεινοὶ πλέκειν τοι μηχανὰς Αἰγύπτιοι.

[35] Cf. *Thesmophoriazousai* 921–2, at which the scholiast comments ἐπανουργεῖτε ὡς δὴ τῶν Αἰγυπτίων πανούργων ὄντων.

[36] Fr. 378 (Kock) αἰγυπτίαζειν. τὸ πανουργεῖν καὶ κακοτροπεύεσθαι, ὡς ὁ κωμικός, φασί, Κρατῖνος δηλοῖ.

[37] Cf. Aristotle, *EN* 1144a24–8: 'there is a certain faculty called cleverness (*deinotēs*). This is a capacity which enables us to do the things which lead to the aim that we propose and to attain it. If the aim is noble, this is a praiseworthy faculty, but if it is not, it is knavery (*panourgia*), which is why we say that both the practically wise (*tous phronimous*) and the knavish (*tous panourgous*) are clever.'

[38] Cf. *Republic* 485c–486a, where honesty, the love of truth and the rejection of *philochrēmatia* and *aneleutheria* are hallmarks of the philosopher, the last two, as mentioned above, being the hallmarks of the Egyptian and Phoenician character at *Laws* 747b.

represents the truth about the structure of the human soul and about how the city should be organized. The introduction of this myth is relevant to our purposes:

> 'How, then,' said I [Socrates], 'might we contrive one of those opportune falsehoods [*pseudōn*] of which we were just now speaking, so as by one noble [*gennaion*] lie to persuade if possible the rulers themselves, but failing that the rest of the city?' 'What kind of a lie do you mean?' said he [Glaucon]. 'Nothing unprecedented,' said I, 'but a sort of Phoenician tale, something that has happened before now in many parts of the world, as the poets aver and have induced men to believe, but that has not happened and perhaps would not be likely to happen in our day and demanding no little persuasion to make it believable.' (414b8–c7, transl. Shorey with alterations)[39]

The reference is to 389b where we were told that the rulers could lie for the good of the city, when either an external or an internal threat made it necessary, whereas no one else was allowed to lie. It is acceptable for the rulers to lie because they know the truth and hence will not be deceived in the respect that matters, that is in their souls, even though their words may be deceitful. The myth of the three metals is one of those stories told by the rulers which are literally false but which are true in the sense that they represent what is good for the city. In agreement with *Republic* 382c1–d3 (discussed above), the myth is made up as a story about the past and is recommended because it is useful to the city (*kēdesthai*, 415d4, cf. *chrēsimon*, 382d3).

Given Socrates' other comments on the Phoenician character, we would expect a Phoenician story to be less than noble. But in this case what attracts Socrates to the comparison of his myth with a Phoenician story (like his comparison in this passage with the poets) is not its moral character as such but the readiness with which it is made up to suit the purpose at hand. The Phoenicians, like the Egyptians, are clever at coming up with useful stories but Socrates will employ this cleverness in a good cause rather than for the sake of *panourgia*. In the *Phaedrus*, Socrates comes up with another 'ancient' tradition (*akoēn tōn proterōn*, 274c1), the famous story of Theuth and Ammon. In reply, Phaedrus remarks 'you easily make up stories from Egypt or wherever you like' (275b4–5). Again it seems that Egyptian stories are tall stories in the sense that they are freely invented. Nevertheless, Socrates insists on the truth of its message, namely, that writing cannot teach you anything but can only serve as a reminder of what you already know.

[39] Most importantly, 'lie' for 'fiction' in 414c3.

Critias denies at first that his story (like a poet's) is spoken offhand, but he later conspicuously contradicts himself.[40] So there is reason to take Critias' story, despite his initial protestations, as invented for the occasion. Critias' elaborate demonstration of his sources and their authority certainly *suggests* the use of a critical historical method to reconstruct a set of historical events. We are familiar from other dialogues such as the *Symposium* and the *Menexenus* with the use of historical references which are clearly anachronistic.[41] On these occasions, the impression is that supposedly historical references achieve the contrary effect of underlining that the dialogue is not a historical document.[42] Though none of the other dialogues employ historiographical method as overtly as the *Timaeus*, it may well be that Plato uses such a method in order to heighten the account's *pretence* to historicity, its fictionality, rather than to overcome this fictionality.[43]

We should notice the strength of Critias' claim to historicity. Solon asks of the priests to hear everything 'accurately', *di' akribeias* (23d).[44] The priests oblige by first telling him the events in outline, whilst promising to go through the detail (*to akribes*) later (23e6). Fifth- and fourth-century historiographers often deny the possibility of *akribeia* in ancient history (*ta palaia*).[45] Ancient history escapes proof (*elenchos*) and 'accuracy' (*akribeia*) and hence, as Thucydides puts it, achieves a sort of spurious authority as myth (1.20–1).[46] On this strict criterion, ancient history is therefore not a proper subject matter of historiography. We can leave it to the poets to make up stories about the ancient past. One of the more trenchant critics of the notion of accuracy in ancient history is Ephorus: 'On contemporary events we regard as most believable those who give the most detailed account (*akribestata*). On events in the distant past (*tōn palaiōn*), however, we consider such an account wholly implausible on the grounds that it is unlikely that all actions and most speeches would be remembered over so long a period of time.'[47] Critias' claim to present an accurate account of

[40] Cf. οὐ μὴν ἐβουλήθην παραχρῆμα εἰπεῖν (*Tim.* 25e5–26a1) with ἐκ δὴ τοῦ παραχρῆμα νῦν λεγόμενα (*Crit.* 107d9–e1).

[41] Cf. Dover (1980) 10 with the references to the Corinthian war and the King's Peace at *Menex.* 244b3–246a4.

[42] Cf. Rowe (1998).

[43] The use of historiography in the *Timaeus-Critias* thus raises important wider questions about the status of the Platonic dialogue as fiction, which I cannot attempt to tackle within the confines of this chapter. For some observations on the issue, cf. Rowe (1999).

[44] For the sense of *akribeia* as 'in conformity with external reality', cf. Marincola (1997) 68 and Hornblower (1991) 60.

[45] Cf. Marincola (1997) 70 (with n. 33 on Thucydides 1.20.1 where '*ta palaia* refers to what occurred before the Peloponnesian War, including the Persian Wars').

[46] Cf. Moles (forthcoming).

[47] Fr. 9 in Jacoby (1923) (Wiseman translation); cf. Marincola (1997) 70.

events 9,000 years ago would strike historians of Ephorus' stripe as 'wholly implausible'. We may of course still insist that Critias' story is exceptional since it is based on Egyptian evidence, ancient history being to the Egyptians as recent history is to us because of the Egyptians' immutability and exceptional memory. However (even setting aside misgivings about the Egyptians' honesty), the small print gives the lie away. Our earliest existing sources (assuming that the Egyptians began writing down their sources at the founding of their nation) are 8,000 years old (23e).[48] The accuracy of the account is supposedly ensured by the fact that it was written down and so escaped the vagaries of oral memory and *akoē*.[49] However, it transpires that, even if the events were recorded 8,000 years ago, the writings still only represent what the Egyptians gathered from hearsay (*akoēi ismen*, 23a2) about events that took place a thousand years before.

Again, the references to still observable evidence *suggest* the careful use of autopsy to verify the verbal evidence.[50] Yet the role of autopsy when applied to ancient history can itself be seen as questionable. As Thucydides (1.10.1–3) argues in the *Archaeology*, 'suppose, for example, that the city of Sparta were to become deserted and that only the temples and foundations of buildings remained, I think that future generations would, as time passed, find it very difficult to believe that the place had really been as powerful as it was represented to be . . . If, on the other hand, the same thing were to happen to Athens, one would conjecture from what met the eye (*apo tēs phaneras opseōs*) that the city had been twice as powerful as in fact it was' (transl. Warner).[51] Autopsy of monuments can be a misleading guide to political realities and the more so the further removed in time one is from those realities. In the case of Solon, who relies so heavily on the authority and

[48] However, at *Laws* 2.656e–657a the Athenian Stranger insists that the statutes written or engraved in the temples are not loosely speaking but literally ten thousand years old (οὐχ ὡς ἔπος εἰπεῖν μυριοστὸν ἔτος ἀλλ' ὄντως, 656e5–6). The over-precision of the dating (as well as its incongruity with the *Timaeus*) suggests that Plato is playing fast and loose with the Egyptians' perceived antiquity.

[49] Cf. *Tim*. 23e6–24a2: τὸ δ' ἀκριβὲς περὶ πάντων ἐφεξῆς εἰς αὖθις κατὰ σχολὴν αὐτὰ τὰ γράμματα λαβόντες διέξιμεν.

[50] Solon is asked to observe (*skopei*, 24a2) the laws in Egypt to get *paradeigmata* of how things were in ancient Athens. He perceives (*ēisthēsai*, 24b1) the separation of the warrior class from the other classes in Egypt and he sees (*horais*, 24b7) how the law makes the Egyptians study cosmology. There is evidence (*tekmērion*, 110e6) of the excellence (*aretē*) of the region even now in the fact that the country is still as fertile as any other country even after the catastrophes that wrecked it. Critias points to 'the clear evidence' (*phanera tekmēria*, 111a3) of dense forests in the mountains ('there can still be found intact rafters cut from trees that were felled and brought down to be used for the great building projects', 111c5–7), and the still remnant monuments of ancient springs are signs (*sēmeia*, 111d8) of the abundance of rain at that time.

[51] Cf. Marincola (1997) 68.

honesty of the Egyptians for the interpretation of what he sees, there is no guarantee that what he supposedly sees is any more correct than what he hears.

Critias' use of the gods is a further significant detail in this context. Whereas Thucydides' refusal to discuss divine matters can be seen as part of his self-conception as a rational historian,[52] Critias' account, in contrast, relies heavily on the supposed actions of Athena and Poseidon in the foundation and organization of Athens and Atlantis. The story itself breaks off at the beginning of a speech by Zeus to the assembled gods, a speech that reminds us of the assembly of the gods in *Odyssey* 1.

What makes Critias' ancient history suspect as history is not, then, that it simply fails to live up to the stricter standards of contemporary history as Thucydides and Ephorus see them. For that he might be excused. The problem is not that his history trails off into myth in a manner one might associate with Herodotus. The point is rather that he presents ancient history as if it were constructed according to the rigorous standards that Thucydides, amongst others, thinks could apply (and here only with difficulty) to contemporary history. So when Critias presents his account as *akribēs* and *alēthēs logos*, one infers not only that the Atlantis story fails as history in a rigorous sense (for if there was any honest interest in the use of source material and historiographical method, why not simply present the account as rough and vaguely plausible ancient history?), but that the story is an out-and-out *pseudos* invented for the occasion.

What, however, would be the point of such an elaborate pretence to historicity? *Rep*. 414b8–c7 (just quoted) suggests that the point of inventing stories and presenting them as history is that it makes people believe in the possibility of events they would not believe possible in the present. If so, there is an obvious advantage for Socrates in presenting stories about his ideal citizens as history, as he does in the case of the *muthos* of the three metals. At the end of the latter *muthos* Socrates asks Glaucon 'Can you think of any scheme so that they will believe this story (*muthos*)?', to which Glaucon responds 'No, not they themselves but their sons and then thereafter the rest of the generations.' The story of the three metals is told as a story about the past because we are more likely to believe unlikely things if they are attributed to the past than to the present. Even so, Glaucon suggests that the story will still only be credible to the second generation of citizens in the ideal state. The reason is perhaps that even though we are

[52] Cf. Finley (1942) 310–11 and Hornblower's criticism of the alternative view that Thucydides accommodates religion to some extent (Hornblower (1991) 206–7); cf. also Moles (forthcoming).

more credulous when it comes to the past than the present, what we are told about the past still has to bear some measure of resemblance to our present-day experience if we are going to believe it. So it is only once the ideal city *has been* instituted (i.e. with the second generation) that there is anything in the citizens' own experience and upbringing to make this *muthos* seem plausible, even when told as a story about the past. Like the myth of the three metals, I would suggest, the Atlantis story is told as a story about the past so that we may believe in the possibility of events that we might *out of hand* deem impossible if told about the present. The important point about the Atlantis story, then, is not that it is set in the past as such, but rather that it is a setting of which we are ignorant. The story might equally well be set in the future or in the present in some distant location, if that helps us abstract from our present-day experience as the main criterion of what is possible and impossible.[53]

I have argued that we should view the Atlantis story in the *Timaeus* as an 'Egyptian story' constructed along the lines of Socrates' recommendations for the poetic use of ancient history in the *Republic*. However, there might seem to be one obvious problem for this interpretation, since Socrates, when accepting Critias' story as serving his purpose, says that *to te mē plasthenta muthon all' alēthinon logon einai pammega pou* (26e4–5): 'the fact that it is not a fabricated story but a true account is a huge affair (*pammega*), I suppose (*pou*)'. However, on closer inspection Socrates' language suggests implied criticism of the distinction. The term *pammegas* occurs only three times in Plato and nowhere else in extant Greek literature.[54] According to R. S. W. Hawtrey, *PAN*-compounds generally (though not always) imply disapproval in Plato, sometimes being associated with the sophists (e.g. *passophos*) and sometimes with the world of the senses (e.g. *pantodapos* and *pantoios*). Hawtrey relates the use of *pammega* at *Phaedrus* 273a5 to Phaedrus' 'exaggerated passion for rhetoric' (60) and notes that 'some implicit criticism by Plato may reasonably be assumed' (61). The other two

[53] Cf. *Rep*. 6.499c–d: 'If then the best philosophical natures have ever been constrained to take charge of the state in infinite time past, or now are in some barbaric region far beyond our ken, or shall hereafter be, we are prepared to maintain our contention that the constitution we have described has been, is or will be realised when this philosophical Muse has taken control of the state. It is not a thing impossible to happen, nor are we speaking of impossibilities. That it is difficult we too admit' (Shorey transl.) with M. F. Burnyeat (2000a) 184. Burnyeat points to the parallel between the communality of women and slaves in the *Republic* and the Agathyrsoi in Herodotus 4.104. By travelling far enough you could find to be custom elsewhere what was *atopon* to a Greek. In a sense, Plato exploits both our ignorance of the ancient past and our relative ignorance of foreign lands, for instance Egypt, in order to present his fiction as plausible. Thus both ancient Athens and contemporary Egypt are made to have the institutions of the ideal city.

[54] Cf. Hawtrey (1983) 56–65.

occurrences of *pammega* (*Phaedo* 109a9 and *Tim*. 26e5) Hawtrey takes to be 'neutral, both occurring in passages of some solemnity' (61). However, given Hawtrey's general argument, it would seem plausible to apply his observation about *pammega* in the *Phaedrus* also to *Timaeus* 26e5 and see the term also here as introducing an element of implicit criticism through rhetorical exaggeration. *Pou* could then be taken to add to the note of disbelief.[55] Denniston thus mentions *Tim*. 26e5 as an example of *pou* occurring last in a sentence so that 'doubt is thrown in as an afterthought'.

Similarly, Socrates' statement that it is by good fortune (*agathēi tuchēi*) that the Atlantis story has come up since it would be impossible to 'find others if we dismiss these [i.e. the ancient Athenians conceived as historical representatives of the ideal city]' (26e5–6) sounds suspiciously as if he thinks that he is being rather too lucky and that the story might indeed be *plastheis muthos* ('a fabricated story').

However, Socrates' scepticism of Critias' truth claims may not simply imply that Socrates suspects that Critias' account is *plastheis muthos* and not *alēthinos logos* ('a true account'). Instead, Socrates may hint at criticism of the distinction between *plastheis muthos* and *alēthinos logos*, as applied to the subject in hand. In other words, the suggestion may be that we should take the account of his citizens' noble deeds as, in some sense, both *plastheis muthos* and also *alēthinos logos*. For even if the Atlantis story fails to be true in a literal historical sense, it may still succeed in being true as an illustration of a general truth. If Plato is making up the Atlantis story according to the guidelines of *Republic* III, then the story is not simply a lie. Rather, it must be a story that illustrates a truth of some sort. This truth, I have suggested, is the truth about how good citizens would behave in action. My reasons were: (a) that this is the sort of human subject that *Republic* X allows for and *Republic* III seems to encourage (by analogy with the stories about the gods); and (b) that this is the subject that Socrates explicitly says (19e6–8) he wants portrayed in the *Timaeus*.

To conclude: I have argued that Plato through Critias invents a story about the actions of Socrates' ideal citizens. The story is an imitation in words of the truth about how they would behave in war. It is told as a story about the ancient past because our ignorance of ancient history

[55] Cf. Denniston (1959) 493. More generally he observes that: 'From *pou* meaning "somewhere" is developed the sense "I suppose", "I think", the particle conveying a feeling of uncertainty in the speaker. Hence, further, *pou* is used ironically, with assumed diffidence, by a speaker who is quite sure of his ground. The tone of uncertainty, whether real or assumed, is ill-adapted to the precision of history, or to the assertiveness of oratory . . . *pou* (*kou*) admirably suits the easy colloquial style of Herodotus and, par excellence, the ironical bent of Plato, in whom it is very common' (490–1).

allows us to suspend disbelief in the possibility of such events actually taking place. Critias presents the story as *logos* rather than *muthos*, adopting historiographical methods in support of his claim. However, on closer inspection it appears to the reader that these methods do not serve to establish the account as more historical but rather as more deceptively like a historical account. Historiography is thus suborned in the *Timaeus* to make the Atlantis story seem more truth-*like*, which is to say, a stronger, more plausible fiction (*pseudos*).[56]

[56] This chapter first appeared as Johansen (1998b). I am grateful to a number of scholars who have commented on more or less distant relatives of the chapter: Gabor Betegh, Myles Burnyeat, Christopher Gill, Robert Fowler, Erik Gunderson, John Moles (and the HISTOS team), Sitta von Reden, Christopher Rowe, Frisbee Sheffield and members of my audience at the 1997 Classical Association meeting at Royal Holloway.

CHAPTER 3

The status of Timaeus' account

Chapter 1 argued that the connection between the Atlantis story and Timaeus' cosmology lies in teleology. Nature in general and human nature in particular are geared towards the good. We acted against nature if we chose a life of injustice and could expect to suffer for it, whilst a life of justice would be rewarded with happiness in this life as in the afterlife. In chapter 2 I considered the Atlantis story and argued that it is a story about the actions of good men, of the sort envisaged by the *Republic*. We were warned not to take the story as a historical representation, but as a true story in the sense that it correctly represents how good people would prevail in war.

In this chapter I turn to the status of Timaeus' account. Timaeus famously describes the status of his account as an *eikōs muthos* or as an *eikōs logos,* that is, as a likely story or myth or as a likely account. This description occurs as the conclusion of the methodological passage at the beginning of Timaeus' speech. Timaeus will later litter his account with reminders that his account is likely.[1] There is therefore no doubt that he means us to pay close attention to this passage. This chapter focuses on the two major questions we face when assessing the status of Timaeus' account. What does he mean by calling his account 'likely' and why does he call it alternately a likely *muthos* and a likely *logos*? Critias, as we saw, drew the standard contrast between *muthos* and *logos*, though his use of that contrast was complicated in various ways. What, then, does Timaeus mean by using both *muthos* and *logos* to describe his cosmology? What do our answers tell us about the status of natural philosophy according to Timaeus?

The claim that our account of the cosmos is at best a likely *muthos* occurs as the conclusion of a passage beginning at 27d6 which Socrates refers to as Timaeus' prelude (*prooimion*, 29d5). We need therefore first of all to interpret the claim in the context of this passage. After a prayer to the

[1] Cf. 30b, 34c, 44d, 48c, 48d, 49b, 53d, 55d, 56a, 56d, 57d, 59c, 68d, 72d, 90e.

gods, Timaeus begins the prelude by making a set of distinctions. First, there is the distinction between what always is (*ousia*) and what is always becoming (*genesis*) (27d6–28a1). This distinction coincides with a second distinction between what is grasped by thought with reason and what is grasped by opinion with unreasoned perception (28a1–4). There is a also third distinction between what comes into being by being modelled on an eternal model and what comes into being by being modelled on a generated model.

Timaeus then describes the cosmos by relating it to the three distinctions. In relation to the first distinction the cosmos belongs on the side of what comes into being. We know this because the world is perceptible (second distinction), and everything perceptible has come into being. He then argues in relation to the third distinction that this world has come into being by being modelled on an eternal model. There are two reasons for this claim. Firstly, the world is beautiful and nothing that has been produced using a generated model is beautiful. Secondly, its maker is said to be the best of all causes (29a6) with the implication that the best maker would only use the best model. The application of the three distinctions has thus delivered the following description of the world: it is perceptible and (therefore) has come into being and it has come into being by being created with reference to an eternal model.

Having introduced the object of his account in this way, Timaeus next turns to the question of the status of an account of such an object. *Tim.* 29b1–d3:

> Again these things being so, our world must necessarily be a likeness of something. Now in every matter it is of great moment to start at the right point in accordance with the nature of the subject. Concerning a likeness, then, and its model we must make this distinction: an account is of the same order as the things which it interprets – an account of that which is abiding and stable and discoverable by the aid of reason will itself be abiding and unchangeable (so far as it is possible and it lies in the nature of an account to be incontrovertible and irrefutable, there must be no falling short of that); while an account of what is made in the image of that other, but is only a likeness, will itself be but likely, standing to accounts of the former kind in a proportion: as reality is to becoming, so truth is to belief (*pistis*). If then, Socrates, in many respects concerning many things – the gods and the coming-into-being (*genesis*) of the universe – we prove unable to provide accounts at all points entirely consistent with themselves and exact, you must not be surprised. If we can furnish accounts no less likely than anyone else's,[2] we must

[2] Following the construal of Chalcidius and Taylor. Cornford translates: 'no less likely than any other account'.

be content, remembering that I who speak and you the judges (*kritai*) have only a human nature, and consequently it is fitting that we should, in these matters, accept the likely story (*eikota muthon*) and seek no further. (Cornford transl. with alterations)

The key principle in determining the status of the account (*logos*) is that an account is kindred (*suggenēs*) with its subject-matter. An account is an 'exegete' or interpreter (*exēgētēs*) of its subject-matter. As such an account inherits its status from its subject-matter. Timaeus underlines this point by using identical, synonymous or cognate terms to describe the account and its subject matter. So an account of something stable and certain (*monimos kai bebaios*) is itself stable and unfailing (*monimos kai ametaptōtos*), whilst an account of what has been produced as likeness (*apeikasthentos*) is itself likely (*eikōs*) being of a likeness (*eikōn*).

We now have four terms: (a) what is stable, (b) an account of what is stable, (c) what has come into being as a likeness, and (d) an account of a likeness. As we saw, an account is in a determinate relationship to its subject matter because it is an interpreter of its subject matter. We can therefore express the relationship between the terms as: as (a) stands to (b), so (c) stands to (d). The terms of this analogy can in turn be converted as follows: as (a) stands to (c) so (b) stands to (d). Or as Timaeus puts it: as being stands to becoming so truth (*alētheia*) stands to conviction (*pistis*).

It is puzzling that Timaeus should contrast the status of the two accounts in terms of truth and conviction. For the contrast suggests that no account of coming-into-being can be true. However, several passages in the *Timaeus* suggest that there *are* truths about coming-into-being. First, at 53e3 Timaeus asks: 'What are the most perfect bodies that can be constructed, four in number, unlike one another, but such that some can be generated out of another by resolution? If we can hit on this, we have the truth about the coming-into-being of earth and fire (*ekhomen tēn alētheian geneseōs peri gēs te kai puros . . .*).' Second, at 51d6 he distinguishes the forms from what is perceptible and changeable by saying that the one is grasped by reason (*nous*) and the other is grasped by true belief (*doxa alēthēs*). Third, in describing the world soul's thinking of the perceptible (*to aisthēton*) he says that the world soul has 'firm and true beliefs and convictions' (*doxai kai pisteis bebaioi kai alētheis*, 37b9). So it is clear that beliefs and convictions can be true and certain even when they concern what is perceptible, which presumably would include what comes into being (cf. 28b9-c1). If Timaeus is to be consistent, he therefore has to have a different notion of *alētheia* in mind at 29c3 from plain 'truth'. The context would suggest that his notion of truth involves not just certainty but also stability (*monimos*), accuracy, and

consistency with other related accounts (28c6). To this it might be objected that surely accounts of what comes into being can also be stable, accurate and consistent with other accounts of what comes into being if they can be certain (*bebaios*) as 37b9 implied. However, it may be that we should think of all of these attributes in terms of degrees. Thus at 51d5–7 Timaeus argues that if as some think true belief does not differ from knowledge (*nous*), then we should take perceptible matters to be the most certain (*bebaiotata*). Timaeus may be implying here that there is a scale of certainty along which he assigns different places to knowledge and true belief, even if other people do not. Such a claim might be compared with the image of the line in the *Republic* according to which the four subsections are distinguished in terms of degrees of clarity (*saphēneia*) on the side of the soul, and in degrees of truth on the side of the subject matters (*Rep.* VI 511d6–e4). Similarly, it may be that Timaeus at 51d5–7 is suggesting that there are degrees of certainty that different subject matters allow and different, kindred soul states therefore have. This view might allow him more generally to say that beliefs and convictions about perceptible matters can have some degree of truth and certainty, whilst still contrasting the status of such beliefs with the optimal, unqualified truth and certainty that we can only have when thinking about being. It would therefore be possible for Timaeus to contrast conviction with truth *simpliciter* at 29c3 not because he holds that convictions cannot be true, but because he thinks they can only be true in some qualified way.[3]

If we now ask what is the qualified way in which accounts of what comes into being can be true, Timaeus' answer seems to be that they can only be likely (*eikōs*). Timaeus tells us that the account can *at best* be likely because it is an account of a likeness. There are two sorts of mistaken interpretations of this answer we should guard against. The first is to say that there can be no literal truths about a likeness. It is sometimes thought that for Timaeus to say that an account is likely is to exclude that it can be literally true. So Cornford seems to suggest that there can only be a likely story because there is no literal truth as to the creation of the universe.[4] On this view, *eikōs* means 'as pertains to a literary *eikōn* (simile)'. So the creation story in so far as it is only likely is in some sense only metaphorically true. However, one indication that Timaeus' description of the account of the cosmos as *eikōs* is not supposed to mark the distinction between the metaphorical and the literal is that Timaeus is usually careful to mark off images *within* his account. So at 48b5–c2 when criticizing those who take fire and the other

[3] 29b7–c1 suggests that refutability comes in degrees (*kath' hoson*, etc.) and accounts of the paradigm should have the highest degree possible.

[4] Cornford (1937) 31–2.

simple bodies to be the elements or letters (*stoicheia*) of the universe, he says that they would not be even plausibly (*eikotōs*) likened (*apeikasthēnai*) to syllables by an intelligent person. And when distinguishing the paradigm, the likeness, and the receptacle at 50d2 he says that it is appropriate to liken (*proseikasai*) the receptacle to a mother, the paradigm to a father, and the likeness to the offspring. On Cornford's reading we lose the contrast between such cases, where Timaeus explicitly says he is using an *eikōn*, and the rest of his account. So it cannot be the general point of *eikōs* to exclude literal truth.

A better analogy for Timaeus' use of *eikōs* is that of the law court. Timaeus is perhaps inviting us to think of this analogy when he refers to his audience as 'judges' (*kritai*, 29d1). It is clearly assumed by the procedures of the law court that there is some truth of the matter as to who killed Mrs Jones. However, if there is no conclusive evidence the difficulty is that the jurors cannot have certainty about who killed her. Any verdict they reach will be based on mere conviction rather than knowledge. The jury's belief as to who committed the crime may of course happen to be true, but in the absence of firm evidence the belief will be merely likely. Timaeus' term *eikōs* is indeed standardly used in Greek forensic rhetoric for the kind of argument that establishes its conclusion only with likelihood. This sort of argument is contrasted with the direct evidence provided by eyewitnesses.[5] The term 'likely' then highlights the degree of uncertainty with which we make our claims; it does not cast doubt on whether the claims can be true or false.

[5] '*Eikos*' is, to quote Wardy (1996) 33, 'probably the most important term in ancient rhetoric', or in the words of Kennedy (1963) 39 'the greatest weapon of Attic oratory'. Aristotle (*Rhet.* 1355b35) divides rhetorical proofs (*pisteis*) into the artistic (*entechnoi*) and non-artistic (*atechnoi*) ones, where *eikos* arguments are an example of the artistic sort (ones that the speaker himself constructs), whilst laws, witnesses, testimony exacted from slaves under torture (*basanos*), contracts, and oaths are non-artistic. The distinction seems representative of rhetorical practice, being assumed by a number of forensic speakers such as Lysias and Antiphon (some of whose *Tetralogies* read as textbook exercises in the proper deployment of *eikos* arguments.) The distinction is restated by the author of the *Rhetorica ad Alexandrum* (1431b7) in terms of direct or supplementary (*epithetoi*) proof. Gagarin (1997) 123 sums up the use of *eikos* arguments in Antiphon as follows: '[*eikos* arguments] are commonly applied to questions of fact, where the direct evidence is lacking or questionable (e.g. Gorgias, *Palamedes*). The *eikos*-arguments in this case could be used with only slight modification in a wide variety of cases where the essential question was "who did it?" They are supplemented by other commonplace arguments . . . The direct evidence and indirect arguments are kept separate and at several points the speakers explicitly or implicitly recognize that the former are more powerful than the latter (2.1.2., 2.10, 3.8, and especially 4.8: *ouk tōn eikotōn all' ergōi*).' The possible relevance of the rhetorical material to Timaeus' account is not weakened by the fact that Timaeus' refers to *eikōs muthos* or *logos* (where *eikōs* is grammatically masculine), whereas the rhetorical writers generally refer to proofs *kata to eikos* or *ek tōn eikotōn* (where the *eikos* is grammatically neuter). For Timaeus on occasion also uses the neuter *to eikos* (56d1: *kata to eikos*; cf. 48d3: *eikota*; 48d6: *to tōn eikotōn dogma*).

The second mistake one should guard against is to think of the likelihood of accounts in probabilistic terms. When Timaeus talks of an account of the generation of the universe as being likely he is not thinking of the account as more or less likely in relation to some maximum of 100 per cent probability, as we might think that there is a 60 per cent chance that it will rain today. Rather the likelihood of the likely account seems to be based on the fact that its subject matter is only a likeness of its model. Certainly the likeness can be more or less like its model. That is why one might say that accounts of a likeness are likely to the degree that they represent their subject matter's likeness to the paradigm. So an account that represents the likeness of the cosmos to its model will be more likely to the extent that it brings out the way in which the cosmos is like its model more than another account. However, the degree of likeness will not be quantifiable, any more than the degree to which Peter looks more like his mother than his brother Paul does allows of quantification.[6]

It is clearly important here to try to understand the exact way in which the likelihood of the account derives from the fact that its subject-matter is a likeness. In order to understand the status Timaeus assigns to natural philosophy, we need a proper answer to the question, what is it about a likeness that means that one can only account for it in likely terms? Compare the case of a painted likeness, say, the Mona Lisa. There are a number of things that we can say about this painting. For example, we can say that its size is such and such, that the canvas is made of such and such materials and that the pigments are mixed in such and such ways and so on. But these are not things we say of the painting in so far as it is a likeness of *La Gioconda.* Unlike the material properties of the painting, the properties that we ascribe to it as a likeness are relational ones. They are properties they have in relation to the model. Something (X) is a likeness of something (Y). More accurately, we ascribe likeness to something by means of three-place predicates: X is a likeness of Y in respect of Z. For instance, the Mona Lisa is like its mysterious model in respect of her smile or the pallor of her skin.

Now it is implied in the concept of 'likeness' that there are certain limitations to the properties shared by the likeness and its model. As Socrates points out in the *Cratylus* (432a8-d10), if a likeness has exactly the same the properties that its model has, then we no longer say that it is a likeness of that thing, but that it is that thing. We can of course say that a thing is like itself, but even so we are thinking of that thing with respect to a limited

[6] For further critique of the probabilistic interpretation, cf. Burnyeat (unpublished).

range of properties, and not with respect to all its properties. For if we were thinking of all of its properties, we would be thinking of it as qualitatively identical to itself and not as (merely) *like* itself.

What are the properties that Timaeus thinks the likeness and the model should share? The fundamental property is beauty or 'fineness' as one might also translate *to kalon*. There are two reasons for saying this, which are given at 29a2–6. The first is that we see that the cosmos is beautiful and that is our main reason for thinking that the cosmos was created with an eternal model in mind. For only that which is created with an eternal model in mind is beautiful (28a6–b1). Secondly, the demiurge is the best of all causes. By implication he would try to make his product as good as possible (cf. 29e1–30a3). Hence he would create only the most beautiful possible product (cf. 30a6–7: 'it is not lawful for the best to do anything other than the most beautiful'). Making the cosmos share the goodness and beauty of its model is the whole point of the creation. The main principle we should adopt when we account for the creation is that we should choose the account which shows the greatest possible likeness between the likeness and its model with respect to beauty. From being beautiful then follows having certain other properties: being ordered (30a5–6), having intelligence (30b1–3),[7] being complete (*teleios*) (30c5), and so on. We shall look at how these properties function within Timaeus' account in more detail in the next chapter.

For now, let us note that when Timaeus describes the relationship between the cosmos and its model he has in mind a stronger relationship than mere likeness with respect to such properties as beauty. For two things may be like each other without one having been modelled on the other. So my signature may be like yours (I cross my t's in the same way as you) but I have not modelled my signature on yours. So when describing the relationship between the cosmos and its model we need to add to our criterion that X should be like Y in respect of Z because Y is Z. The cosmos is like its model in respect of such and such properties because the model has such and such properties. It is clear that Timaeus has this stronger relationship in mind at 29c1–2 when he says that 'the accounts of the *thing that has been made as a likeness (apeikasthentos) of that thing* [that is, the model] are likely, being accounts of something that is a likeness and in proportion to those'. In other words, when Timaeus explains why the account of the cosmos can be merely likely he seems to have in mind not just the fact that

[7] Timaeus restricts this point to visible entities (ἐκ τῶν κατὰ φύσιν ὁρατῶν, 30b1). Presumably, this is to avoid the implication that the forms must have intelligence in the way that leads to having a soul.

the accounts are of a likeness but also the fact that the accounts are of a likeness that has been modelled on an eternal model.[8]

However, for Timaeus there is a further thought attached to the notion of 'having been modelled'. The thought is that a likeness is something that has *come into being*. When we say that the demiurge *made* the likeness it is implied that the likeness therefore belongs to the category of 'coming-into-being' rather than to that of 'being'. My reason for adding this thought to Timaeus' description of the likeness is that he presents the analogy between being and coming-into-being, on the one hand, and conviction and truth, on the other hand, as somehow explicating the status of the likeness *vis-à-vis* the paradigm.[9] So when Timaeus argues that an account of a likeness can at best be likely he has in a mind a certain kind of likeness, namely, the sort of likeness that has been produced and therefore belongs in the category of coming-into-being. We could of course imagine likenesses that were eternal. For example, if there are such things, a Platonic form of an apple might be like a Platonic form of an orange in that both were fruits. But this is not the kind of likeness that Timaeus has in mind. He is thinking of things that are likenesses because they have been produced in the likeness of something else. And this means that the likenesses in question fall within the class of things that come into being.

Timaeus calls his audience judges (*kritai*) of his accounts. What I have said so far suggests that our job as judges will centre on judging the way in which his accounts present the world as a generated likeness. The idea seems to be that Timaeus' accounts will be deemed likely in so far as they present the cosmos as a likeness of its model. But why is this job so difficult and why does it call for a reminder of our human nature? The point may seem at first to be the difficulty of knowing the model. A later passage (51e5–6) suggests that knowing about being is a matter for the gods and perhaps a few select human beings, if any. So perhaps the reminder of our human

[8] Cf. Aquinas, *Summa Theologiae* 1.q.93, Art. 1: *Respondeo dicendum, quod sicut Augustinus dicit in lib. LXXXIII Quaestion. (qu. 74), 'ubi est imago, continuo est et similitudo; sed ubi est similitudo, non continuo est imago.' Ex quo patet quod similitudo est de ratione imaginis; et imago aliquid addit supra rationem similitudinis, scilicet quod sit ex alio expressa. Imago enim dicitur ex eo quod agitur ad imitationem alterius. Unde ovum, quantumcunque sit alteri ovo simile et aequale, quia tamen non est expressum ex illo, non dicitur imago eius* ('I answer, as Augustine says in *Quaestion*. Book 83 (qu. 74), "Where an image exists, there forthwith is likeness; but where there is likeness, there is not necessarily an image." Hence it is clear that likeness is essential to an image; and that an image adds something to likeness – namely, that it is copied from something else. For an "image" is so called because it is produced as an imitation of something else; wherefore, for instance, an egg, however much like and equal to another egg, is not called an image of the other egg, because it is not copied from it.')

[9] *Tim*. 29c1–3: τοὺς δὲ τοῦ πρὸς μὲν ἐκεῖνο ἀπεικασθέντος, ὄντος δὲ εἰκόνος εἰκότας ἀνὰ λόγον τε ἐκείνων ὄντας· ὅτιπερ πρὸς γένεσιν οὐσία, τοῦτο πρὸς πίστιν ἀλήθεια.

nature is meant to make us mindful of our limited powers of knowledge. Given the difficulty for a human being of knowing about the forms we should claim no certainty for our accounts when they depend on showing the extent to which the forms are represented in this world. However, the implication of this answer seems to be that our accounts of the likeness would be more than likely *if* only we had knowledge of the forms. But 29b–c seems to make a stronger and different claim: accounts of a likeness can *in principle* only be likely. In other words, likelihood is *in principle* the best we can hope for when dealing with a likeness. No knowledge of the paradigm can change the fact that the likeness of the paradigm is a likeness. So it would seem to apply to everyone, man or god, that a likely account is the best we can hope for when dealing with a likeness. We would want to say that it is more difficult for a man to grasp the paradigm than it is for god. We would also want to say that, as a consequence, a man will have greater difficulty than god in showing how the world is a likeness of the paradigm and furthermore that a man's accounts of a likeness may turn out to be less likely than god's. Nevertheless, it is still true as a matter of principle that both man and god could only aim at likeliness when accounting for the world as a likelihood of the paradigm.[10]

Timaeus takes it, then, that there is something about thinking of how likenesses relate to their originals that only allows such reasoning in principle to be likely. This has to be a point that applies even when we have full access to the model. The clue to the problem lies, I think, in the connection Timaeus draws between being a likeness and belonging to the realm of coming-into-being. The cosmos is a likeness of an eternal paradigm in the world of coming-into-being. The difficulty that this raises for our assessment of this world as a likeness of its model is that the likeness is produced in a different medium from its original. The demiurge is in the position of a craftsman who in copying a form from one medium to another has to find new ways of realizing the form in a different medium. Consider first the task of painting a copy of the Mona Lisa. Both copy and original are paintings, produced by applying paint to canvas. The task is in principle straightforward. You have to re-create the shapes and colours in exactly the same way as they are found in the original. The demiurge, however, is faced

[10] Notice also that Timaeus at 59c7–d2 speaks of laying aside (*katathemenos*) accounts of the forms for the sake of relaxation by pursuing the innocent pleasures of constructing likely accounts of coming-into-being. This passage certainly does not show that our accounts of coming-into-being are not informed by our accounts of the forms. Indeed, we would expect an increased understanding of the eternal paradigm to make us better at demonstrating the world's likeness to the paradigm. However, the passage does suggest that constructing likely accounts is a separate task over and above that of accounting for the forms.

with a different and more difficult task. He has to reproduce attributes of an eternal changeless model in an ever-changing medium. He has to find ways of representing formal attributes within a sphere of continuous change. The parallel with the world of arts would be with making a copy in clay of a drawing, or turning a piece of music into prose (as Thomas Mann famously did in *Dr Faustus*) or, to use the example of the previous chapter, making a movie out of a painting. Similarly, in order to produce a likeness of the forms in the world of becoming, the demiurge has to observe the conditions of this new medium. He cannot simply create another thing like the forms in the world of becoming; he has to work with the possibilities and constraints presented by the world of becoming so as to create something that is a *changing* likeness of eternal being.

Let me try to clarify the point by way of two examples of how Timaeus in practice demonstrates the world to be a likeness of the forms. At 33a–b Timaeus endeavours to explain the shape of the cosmos. He has already argued (30c–d) that the cosmos must be like its paradigm in so far as it comprises (*perilabōn*) all the different sorts of perceptible animal within itself, just as the paradigm contains all the intelligible animals. The cosmos is in this way complete (*teleos*), like its model. The demiurge gives the cosmos the shape that is most fitting for something that contains all the different types of animal. He makes the cosmos spherical, for the sphere is the shape that can circumscribe all other figures. It is most complete (*teleōtaton*) and self-similar of all the shapes. What I wish to underline here is that the way the property of 'completeness' applies to the visible cosmos is necessarily different from the way it applies to the intelligible paradigm. You cannot simply read off the composition of the cosmos from the formal paradigm. For the cosmos is a visible, bodily likeness of the forms. The cosmos cannot comprise the other kinds of visible animal in the way the paradigm contains the other forms of intelligible animal. We need to find a corporeal analogue for containing all the types of animal and it is this analogue that Timaeus finds in the sphericity of the cosmos.

Another example: the demiurge endows the world body with a soul which moves the cosmos in a circular manner. Timaeus then says,

> Now when the creator father saw (*enoēsen*) it set in motion and alive, an image (*agalma*) of the everlasting gods that had come to be (*gegonos*), he was pleased, and in his delight he became minded (*epenoēsen*) to make it even more like its model. So, as the model was itself an everlasting animal, he tried to complete this universe in this way to the extent possible so as to make it of such a sort, too. Now the nature of the [paradigm] animal was eternal, but it was not possible to bestow eternity completely on what has been generated. And so he began to think

(*epenoei*) of making a moving likeness (*eikō kinēton*) of eternity and whilst ordering the heavens, he produces an eternal likeness, moving according to number, of an eternity that stays in unity. This is the number, indeed, which we have called 'time'. (37c6–d7)

The passage illustrates the work that goes into creating the cosmos as a *generated* image of the model. Showing the cosmos to be a likeness of its model is not simply a matter of asserting that the cosmos shares a certain property with the model. God's desire to maximize the likeness to the paradigm prescribes that the cosmos should if possible be eternal, like its model. But no generated thing can be eternal in this way. So the demiurge devises an analogue for eternity in the world of change: time. Time, as Timaeus goes on to explain, has parts, namely, past, present and future, whereas the eternal model does not. We apply 'was', 'is' and 'will be' to the creation, whilst all we can say of the model is that 'it is'. The model always is, whilst time came into being with the universe. Indeed, the numbers of time, the day and night, the month, the year and so on, are differentiated and 'preserved' by the motions of the planets (38b6–c7). Time is part and parcel with the moving universe. The cosmos and its paradigm are then both eternal but in rather different ways. The cosmos is 'eternal' because it keeps moving in accordance with number. As Timaeus said, the demiurge 'produces an eternal likeness, that moves according to number, of an eternity that remains in unity' (37d6–7). The contrast here is between an eternity that *stays in unity* (*en heni*) and one that *moves in number* (*kath' arithmon*).[11] The heavens then are 'eternal' in so far as they keep moving as an ordered plurality, i.e. as days, months, years and so on, whereas eternal being (*hē aidios ousia*, 37e5) simply stays the same as an undifferentiated unity.

Timaeus shows the demiurge working within a different ontological mode, coming-into-being, to create the greatest possible likeness to the eternal paradigm. Previously, I presented the general likeness relation as follows: X is like Y with respect to Z because Y is Z, and I presented its particular application to the *Timaeus* as: the cosmos is like its paradigm with respect to certain characteristics because the paradigm has those characteristics. I further added that it was part of Timaeus' notion of the cosmos as a likeness that the cosmos was created and therefore belonged to the category of coming-into-being, whereas its model belonged to the category of being. It is this addition that now turns out to be crucial. For since the likeness and its model belong to different ontological categories there is

[11] We should recall that for the Greeks 'one' is not properly speaking a 'number' (*arithmos*). For them 'number' implies a plurality.

no straightforward way the two can share the properties with respect to which they are alike. Thus we saw that 'being complete' and 'being eternal' had other implications for the cosmos than for the model. For the cosmos it implied being spherical and in time, neither of which was a possible attribute of the paradigm.[12]

Let me return to the methodological passage at 29b1–d3 in order to summarize my interpretation. I read the passage as follows. Timaeus draws first of all the distinction between the likeness and its model. He then says that accounts should be of the same order as their subject matter. Accounts of the forms which are stable and certain should therefore be stable and certain. However, accounts of what has been made as a likeness of forms are (a) in so far as they are of a likeness no more than likely and (*te*, 29c2) (b) stand in the following analogous or proportionate relationship to the accounts of the forms (*ekeinōn*, 29c2): as being stands to coming-into-being so truth stands to conviction. Now I am suggesting that (a) and (b) should be taken together. Timaeus is not claiming generally that an account of any likeness can be no more than uncertain. Previously, I mentioned the example of one form, say the form of apple, being like another form, the form of orange, in so far as they were both fruits. Here there seemed to be no reason for denying that one could be certain of these likenesses. Nor, however, is Timaeus claiming (as Cornford has it) that no account whatsoever of what has come into being can be more than likely. Such a strong claim would surely require more extended argument. Rather the claim seems to be that (a) shows how our accounts can only be likely when we add (b). We are dealing with likenesses that belong to the category of coming-into-being and therefore there is a fundamental difference between the kind of certainty that we should expect of the likenesses and their model. Of the latter we should aim at certain truth (*alētheia*), of the former we should expect no more than conviction (*pistis*).

Note that the difficulty is not that the perceptible world as such is necessarily too contradictory or changeable to allow of accurate and consistent accounts. It is certainly relevant to Timaeus' point that the perceptible is subject to change but the relevance is slightly different. The relevance is that because there is this fundamental difference between the sphere of being and the sphere of becoming any account such as ours which sets out to show likenesses between the sphere of becoming and the sphere of being

[12] Cf. Plotinus' distinction between two kinds of likeness, *Enneads* 1.2, 'On Virtues'. There is one kind of likeness between one copy and another copy, where the two are of the same kind, and another kind of likeness between a copy and its original, when these are not of the same kind. Cf. Annas (1999) 66–7.

has to show how the likenesses can occur in a quite different ontological setting.

We can sum up, then, the reason why an account of a likeness can be no more than likely as follows. Such an account can only be likely because it is of a likeness that occurs in a different ontological mode, coming-into-being, from that of its model, being. Given the different ontological modes what is required to establish a likeness between likeness and original is a certain kind of reasoning whereby features that belong to the likeness are shown to be analogous to features that belong to the model. Put differently, an account of the likeness involves a judgment of the sort: as feature X stands to being, so feature Y stands to coming-into-being.[13] As we saw, the demiurge has to consider what it means for the cosmos to be most like a model that is eternal, if it cannot mean for the cosmos to be changeless, stable, and one. The demiurge thus has to figure out which properties stand to coming-into-being the way certain properties stand to the eternal model.[14] So he found, for example, that time stands to the created world the way eternity stands to the model. Time is the way of being eternal, *in the mode of coming-into-being*. Identifying such properties is a matter of analogous rather than demonstrative reasoning.[15]

I have tried to explain why Timaeus thinks that accounts of the cosmos can in principle merely be likely. However, what is the relevance of Timaeus' reminder of our human nature? Let us first note that Timaeus' wording implies that different accounts have different degrees of likelihood. He said that 'if we can provide accounts [*logoi* is implied] that are no less likely than anybody else's,[16] we should be content, keeping in mind that I the speaker and you the judges have a human nature, so it is fitting that

[13] Cf. Aristotle's account of analogy at *Metaph.* v.6 1016b34: κατ' ἀναλογίαν δὲ ὅσα ἔχει ὡς ἄλλο πρὸς ἄλλο. For Aristotle 'one by analogy' is the most inclusive form of oneness in that two things can be one by analogy where they are one neither by number nor species nor genus. For examples see *Metaph.* IX.6 1048a35–b3 and *Nic. Eth.* 1096b28–29.

[14] From outside the *Timaeus*, the image of the sun in the *Republic* provides a further comparable example of such analogies across different ontological modes: 'Let's say, then, that this is what I called the offspring of the good, which the good begot as its analogue (*to analogon*). What the good itself is in the intelligible realm, in relation to understanding and intelligible things, the sun is in the visible realm, in relation to sight and visible things' (*Rep.* 508b12–c2). Socrates is asserting the following analogy: as the good is to understanding and intelligible things, so the sun is to sight and visible things. What he has in mind is a certain power in the case of the good to bring about understanding and truth which is analogous to the sun's power to bring about sight and visibility. As in the *Timaeus*, Socrates thus establishes a likeness between two distinct ontological spheres, the intelligible and the perceptible, where the one has been made in analogy to the other.

[15] In Aristotle, too, analogy seems to offer itself as a weaker alternative to demonstrative reasoning in those cases where there is no common genus between the terms of the argument, cf. *Metaph.* 1048a35ff with Lloyd (1996) 144.

[16] Again following the construal of Chalcidius and Taylor.

we seek no further than this accepting the likely story (*muthos*) concerning these matters' (29c7–d3). Timaeus is now making a slightly different point, therefore, when he reminds us of our human nature from the point he made first at 29c2–3, namely that an account of likenesses can only be likely. Timaeus is now assuming that an account of a likeness can be no more than likely and making the further point that amongst the different possible likely accounts we should be content with one that is as likely as anybody else's account.[17] The implication of reminding us of our human nature is that amongst the different accounts the account with the greatest likelihood *available to us* as human beings may not be the same as the account with the greatest likelihood full stop. In other words, god might have access to accounts that are more likely, but as human beings we should be content as long as we can present an account to a human audience no one else can better. I take it here that the comparison with anybody else's account (*mēdenos hētton*) is confined to other human beings. For natural philosophy as Timaeus conceives it is clearly not based on divine revelation (cf. 53d6–7). Since god is not going to tell us what is the most likely account *tout court*, we have to proceed as natural philosophers by our own lights. What Timaeus thus refers to as '*the* likely story' (*ton eikota muthon*) is the account that is the most likely account available to human beings. But this may not be the same as the account which would be available to god as the most likely *tout court*.[18]

Let me summarize the interpretation offered so far. Timaeus argues that we can at best give a likely account of the cosmos. The reason for this is that the cosmos is a likeness that has been generated on the basis of an eternal model. The cosmos therefore falls into a different ontological category from its model. The likeness of the model therefore has to be worked out in a different ontological mode, coming-into-being. Such reasoning is a matter of likely reasoning by analogy and not strict demonstration. This left us still with the problem of why Timaeus reminds us of our human nature when encouraging us to accept the likely account. This was a problem since it might seem to undermine his previous argument that all that anybody could in principle accomplish when accounting for a likeness is likelihood. The answer suggested was that Timaeus admits that accounts can be more or less likely, according as they present the cosmos as more or less like its paradigm. As human beings, we should rest content with an account that is no less likely than anybody else's, that is, any other human

[17] Timaeus seems again to hint at the idea that there may be several more or less likely accounts for the same explanandum at 55d4–6.

[18] I owe this point to Michael Frede's Oxford seminar, Hilary Term 2001.

being's. It is this account that is referred to by Timaeus as 'the likely story (*muthos*)'.

Let me turn now to the second major question of this chapter: why does Timaeus call his account both an *eikōs logos* and an *eikōs muthos*? To some it would seem that there is no further question here once we have answered why Timaeus calls his account *eikōs*. Thus Vlastos argues that,

> Commentators often pick the expression *eikota muthon* out of Timaeus' epistemological introduction (29b–d) and use it as though the emphasis were on *muthon* instead of *eikota*. This is certainly wrong. *Eikos* is the important word . . . A myth is a story; whether the story is mythology or natural history depends on what kind of story it is . . . The typical *mythos* [*sic*] is mythological. But there is no such ambiguity in the *Timaeus* where only the *eikos* is tolerated. And what *eikos* means in this context is carefully defined: the metaphysical contrast of the eternal forms and their perishing copy determines the epistemological contrast of certainty and probability.[19]

On this view the contrast between *logos* and *muthos* is neutralized by *eikōs*. It is *eikōs* that tells us the degree of certainty of the account. Let us consider Vlastos' evidence:

> '[*eikos*] is used thrice explicitly (29c2,8; 29d2) and once implicitly (29b *eikonos . . . sungeneis*). Of these four, it is used thrice as an adjective of *logos*, once of *muthos*. In the seventeen echoes of this introduction throughout the rest of the dialogue, *muthos* is used thrice [n. 16: 59c, 68d, 69c], while *eikos*, *eikotōs*, etc., are used sixteen times [n. 17: 30b, 34c, 44d, 48c, 48d, 49b, 53d, 55d, 56a, 56d, 57d, 59c, 68d, 72d, 90e]. *Eikota logon* is used eight times, *eikota muthon* twice. And it is a pretty commentary on the mythological connotations of *eikota muthon* that it is used both times of purely scientific opinion: 59c, of the composition of metals, and 68d, of colour mixture.'

Vlastos' concluding comment rather begs the question of what Timaeus would mean by 'scientific', since this is exactly what we are trying to determine by assessing his use of *muthos*. Vlastos is clearly right that Timaeus uses *logos* more than *muthos*. However, it is not clear what the implications of this observation are. Vlastos' interpretation is not the only possible, nor, as I shall argue, is it the most compelling.

Two of the three uses of *eikōs muthos* in the dialogue occur in the context of reminding us of our human nature. We have already considered the first instance: Timaeus at 29c8–d3 asks us to remember our human nature so that we do not seek further than the *eikōs muthos*. This follows the lines in which Timaeus argues that no account (*logos*) of a likeness can be more than likely. Michael Frede has therefore suggested that one might take *muthos*

[19] Vlastos (1995) 249–50.

to contrast with the *logos* that is most likely full stop.[20] *Muthos* reminds us that the most likely account that is available to us as human beings may not be the account (*logos*) that is the most likely *tout court*.[21] The *muthos/logos* distinction thus survives as a distinction within the general category of likely accounts (*logoi*). Amongst likely accounts (*logoi*) some accounts (referred to as *logoi*) are likelier than others (referred to as *muthoi*). *Logos* is here used both for the genus 'account' and for a particular species of account which has greater rationality than the other species of account referred to as *muthos*. We have then a distinction within the genus of accounts (*logoi*) between the species *logoi* and the species *muthoi*.

On the second occurrence of *eikōs muthos*, at 68c7–d7, Timaeus concludes his discussion of colour mixtures as follows:

> As for the other colours, it should be fairly clear from the above cases by what mixtures they are produced as a likeness (*aphomoioumena*) in a way that preserves the 'likely story' (*ton eikota muthon*). But if anyone when inquiring should put this to a practical test, he would manifest his ignorance of the difference between the human and the divine natures, in that god both adequately knows and is able to mix many things into one and, again, to dissolve one into many, while no human being is adequate to either of these tasks, now or ever.

Again the relevance of our human nature to the sort of account we can expect is brought to our attention. This time human nature is mentioned in explicit contrast to divine nature. The contrast is explained in terms of a difference of knowledge and power between god and man. The knowledge and power that god deploys in mixing and dissolving colours are unavailable to man. Given that these colours are still being produced as likenesses (cf. *aphomoioumena,* 68d1), we assume, in line with 29b3–c3, that god's understanding of the colour mixtures is no more than likely. But the emphasis on god's superior grasp of these likenesses makes *muthos* an appropriate description of our inferior understanding.[22]

The third use of *eikōs muthos* seems compatible with this suggestion even if it lends no direct support to it. Timaeus ends his account of the mixtures by which metals are produced as follows:

[20] Graduate Seminar Oxford 2001.

[21] Gill (1993) 59 seems to make a similar suggestion: 'the extent to which even this [*sc*. achieving likelihood] is possible is limited by the extent to which we, as human beings, can understand the supra-human, or divine scale of what is involved; thus, the resulting account is to be characterized as a "likely story" (*eikōs muthos*), rather than a "likely account" (*eikōs logos*).'

[22] The general manner in which Timaeus makes the point suggests that he is not just referring to the mixing and division of colours but to mixing many things into one and dividing one thing into many in general. Both the compositions of the world soul and of the world body include mixing and dividing. So Timaeus' point may apply to our ability to verify the creation story more generally.

It is no complicated task to consider further the other things of this sort, following the format of the likely *muthoi*, [pursuing] which when somebody, for the sake of recreation, lays aside accounts (*logous*) about eternal things and gains an innocent pleasure from the consideration of the likely accounts [*logoi* is understood] concerning coming-into-being, he will add to his life a measured and thoughtful amusement. So allowing in this way what comes next we shall set out the subsequent likelihoods on the subject as follows. (59c5–d3)

In contrast to the two other passages no explicit connection is made here between the *eikōs muthos* and our human nature. Timaeus slips from talking of *muthoi* to *logoi* within the same relative clause (*hēn* in c7 refers back to *tēn tōn eikotōn muthōn idean*) in a way that suggests that he is identifying the likely *muthoi* (in line 59c6) with the likely *logoi* concerning coming-into-being. In other words, the passage seems by 'likely *muthoi*' to be referring to the same accounts as by likely *logoi*. The passage thus contrasts two kinds of *logoi*, one concerns eternal beings, and another concerns coming-into-being. It is the second kind that is referred to as both *eikotes logoi* and *eikotes muthoi*.

There is no explicit mention of human nature in this passage which might have justified the reference to *muthos*. However, there can be no doubt that Timaeus is assuming a human point of view. Timaeus is addressing the *logoi* concerning coming-into-being in a way that presupposes the peculiar human needs. I would suggest that his use of *muthoi* is motivated by this viewpoint. Only human beings require relaxation from thinking about the forms.[23] And only to a human being does it make sense to say that he should add a measured and thoughtful amusement (*paidia*) to his life, presumably in contrast to the many other human pastimes that are extravagant and thoughtless. It would be blasphemous even to suggest that divine pursuits could be anything other than measured and thoughtful. There is reason, then, to say that 59c5–d3 refers to the *logoi* concerning coming-into-being as *muthoi* from a particularly human perspective.

THE *EIKŌS MUTHOS* AND THE *REPUBLIC*

In chapter 2 I argued that we could understand the Atlantis story as a *muthos* of the sort recommended by Socrates in the *Republic*. Is Timaeus' use of *muthos* consistent with Socrates' recommendations? And if so, is there a unified notion of *muthos* according to which Timaeus' and Critias' accounts can both be seen as *muthoi*?

[23] Cf. *Phaedrus* 246d–248a: unlike the human souls the divine are in a position to feast on the sight of the forms continuously.

The notion that *muthos* is a peculiarly human kind of account is one that goes back to *Republic* II–III. As we saw in chapter 2, Socrates illustrates falsehood in words with 'the sort of *muthologiai* we have been discussing just now, where, because we do not know the truth about the ancient events, we liken the falsehood to the truth as far as possible, thereby making it useful (*chrēsimon*)' (382c10–d3). The implication is clearly that these *muthologiai* are useful for the educators (*chresimon* implies a dative of interest, cf. 382c6). However, for God no falsehoods are useful. In particular, God does not practise falsehoods because he is ignorant of the ancient past (*dia to mē eidenai ta palaia*, 382d6). Hence 'there is no false poet in God' (d9). It is the contrast between what we can know and what god can know that makes *muthologia*, or 'falsehood-telling' (*pseudos legein*), appropriate to us, but not to God. We cannot know about the ancient events, but it would, as Adeimantus puts it, be ridiculous to say that God did not know. Since the *muthologiai* that have been discussed are stories about God's past actions, he, if anyone, ought to know what happened.

Muthoi are first introduced in *Rep*. II (377a) as a subset of the stories (*logoi*) that we should tell our prospective rulers as part of their cultural training (as one might very loosely translate *mousikē*). *Logoi* are divided into two kinds: those that are true and those that are false (*logōn de ditton eidos, to men alēthes, pseudos d' heteron*, 376e11). Those that are false, 'though there are also some truths in them' (377a5), are referred to as *muthoi*.[24] The distinction is in line with our observations about the use of *muthos* and *logos* in the *Timaeus*. First of all, for Socrates *logos* is the genus of speeches or accounts. *Muthoi* are thus one species (*eidos*) of *logos* simply by dint of being speeches. Secondly, the passage suggests that *muthos* is contrasted with another species of *logos*, referred to, as if by default, as *logos*. *Muthos* is the species of *logos* that is for the most part false (*pseudēs*), whereas the remaining species of *logos* is true. Similarly, we saw that Timaeus, on the one hand, treated *muthoi* as a species of *logoi* (29b3–d3), whilst, on the other hand, indicating that *muthoi* had a lower cognitive status than other *logoi*.

However, in what sense, if any, could Timaeus' account be described as a 'falsehood'? Timaeus is clearly not admitting to the factual falsehood of his account by calling it a *muthos*. For he also calls his account 'likely'. Nor does it seem appropriate to call the account 'deceitful'. So if we take Socrates to

[24] This specific contrast within the genus of *logoi* between *muthoi* and true *logoi* seems to be referred to again at *Rep*. VII 522a7–8: both the 'mythical' of the *logoi* and those *logoi* that are truer (καὶ ὅσοι μυθώδεις τῶν λόγων καὶ ὅσοι ἀληθινώτεροι ἦσαν) are used in musical education to foster good habits.

be saying in the *Republic* that a *muthos* is an account that is factually false, deceitful or both, then Timaeus' account would seem not to be a *muthos* in the *Republic* sense of the word. However, there is reason to doubt whether Socrates means to assert the factual falsehood of all *muthoi*. Certainly, the large majority of *muthoi* that are and have been told can be ruled out as factually false, simply on the grounds that they are incompatible with the general principles governing divine behaviour. So the *muthos* of Kronos' castrating his father must be factually false since no god ever would do such a thing. However, this leaves us with the *muthoi* that could be true in so far as they are in agreement with the general truths about god. As I argued in chapter 2, Socrates suggests at 382d that we should exploit our ignorance of the actual events of the ancient past to invent stories ('fictions') that represent the gods, heroes, and virtuous people as they would act. Since such *muthoi* are therefore premised on our factual ignorance, we cannot say that the *muthoi* are factually true. However, nor can we assert their factual falsehood. For this would equally presume that we had knowledge of the actual past. The point about the *muthoi* at 382d seems therefore to be *not* that we know that they are false but that we do not know whether they are true. If we are to accommodate this point, as surely we are, we have to think of Socratic *muthoi* as *pseudē* in a somewhat different sense from 'factual falsehoods'.

In the previous chapter I argued that we could usefully think of *muthoi* as fictional in the sense of having been fabricated without regard to the facts. One of Socrates' reasons for calling the *muthoi pseudē* was to draw attention to the contrast between *muthoi* and factual forms of discourse. I would suggest that in this limited sense Timaeus' *muthos* might also be described as a *pseudos*.[25] Timaeus' account is not factual in the sense that it is based on actual knowledge of how God made the world. The account is a *muthos* partly because it is an account of the kind of thing that *could have* happened when the world was created, but you and I, unlike god, do not know whether this is what happened. Again this does not mean that the creation did not happen as Timaeus tells it; it might well have happened in this way and the account will be the more persuasive the more likely it is that it did. However, the likelihood of Timaeus' account should not be measured on the basis of a correspondence with any factual knowledge of how God made the universe, of which we have none. Rather its

[25] In other words, I am not suggesting by calling his account a *muthos* that his account is deceitful or false.

likelihood should be assessed on the basis of the extent to which the account represents the way in which God would act if he set about creating the universe.[26] Since, as we do know, God would create the universe so as to make it as good as possible and making it good means making it as like eternal being as possible, we are again brought back to the question of how the world might best resemble an eternal paradigm. That is to say, the question of the historical likelihood of the account gives way to the philosophical question of the maximal likeness between a generated world and an eternal model. Timaeus' use of *muthos* thus actively discourages us from considering his cosmology as a historical narrative in favour of this philosophical question.

It appears, on this line of interpretation, that there are parallels between the status of the Atlantis story and the status of Timaeus' cosmogony. Firstly, Critias' account (despite his protestations) and Timaeus' account are both told in the absence of factual knowledge. The Atlantis story is told in the absence of knowledge of events 9,000 years ago, the cosmogony in the absence of any knowledge of how God actually composed the world. They are both invented stories in the sense that they are told in the absence of historical knowledge. Secondly, both accounts can be seen as composed in accordance with Socrates' rules for story-telling about gods and good men. They aim to show the goodness either of god (Timaeus' cosmology) or good men (the Atlantis story) expressed in action and speech.

In *Republic* II Socrates took the fundamental principle of *theologia* to be that since god is good he should be portrayed as the cause of only good things and as blameless for bad things (379b–c). Similarly, Timaeus begins his account by arguing that since God was good he would want and do only good things. It would be unlawful, as he says, for the best thing to do anything other than the most beautiful (30a6–7). The premise of Timaeus' cosmology thus reads as if it was written to match Socrates' principle of *theologia*. There is therefore a sense in which Timaeus' account, like Critias', coheres with the *Republic*'s understanding of *muthos* and its proper use.

Teleology lines up with this understanding of story-telling. By telling stories about the actions of god and good men of the sort Socrates recommended in the *Republic* we show how goodness works as an organizing force in the natural and the political world. It is thus a corollary of the idea

[26] Compare Phaedrus' comment in the *Phaedrus* about the ease with which Socrates invents stories from Egypt or wherever he likes (275b3–4) and Socrates' telling reprimand (275b5–c2): never mind the provenance of the story, just consider whether what it claims about letters is correct.

that God is good and acted well in creating the world that the world is to be explained from the point of view of the good. For it is by showing the good order of the world that we show both the extent to which God had good intentions in creating the cosmos and the extent to which he was successful in carrying out those intentions. The precise role of God within Timaeus' teleology is the subject of the next chapter.

CHAPTER 4

Teleology and craftsmanship

It is common to distinguish between two kinds of teleological account. One kind explains an outcome as the result of intentional agency. In this sense I might explain why I went to the circus by saying that I wanted to have fun. Another kind of teleological explanation does without intentions and posits goals without reference to thoughts or other intentional states.[1] Aristotle's natural teleology is normally taken as an example of the latter, unintentional sort.[2] In contrast, Plato's cosmology in the *Timaeus* is, with good reason, taken as an example of the intentional sort of teleology, or 'unnatural' teleology as James Lennox has called it.[3] So at the beginning of his account Timaeus tells us that the cosmos was created by a craftsman, a 'demiurge' (Greek, *dēmiourgos*), who wanted to make the world as good and beautiful as possible (30a2–3). Throughout his account Timaeus reminds us that the demiurge made this or that feature of the cosmos as well as he could or that he made it in order that such-and-such an end should come about. The aim of this chapter is to examine the role of the demiurge in the creation of the cosmos in the light of this contrast between natural and unnatural teleology. I shall first consider Timaeus' reasons for introducing the demiurge. I then look at and reject some ways in which one might try to dispense with the demiurge when interpreting the *Timaeus*. I suggest an interpretation of the demiurge which, whilst maintaining him as a distinct entity, assimilates him in certain respects to the Aristotelian model. Finally, I make some comments about the questions as to whether and, if so, in what sense the demiurge created the world in time.

CRAFTSMANSHIP AS A CAUSE OF ORDER

The idea that the cosmos is to be explained teleologically is for Timaeus closely related to the claim that the cosmos was created by a craftsman. In

[1] For a clear statement and analysis of the distinction in Aristotle, see Charles (1991).
[2] Cf. Cooper (1982) 221–2. [3] Lennox (1985).

the proem Timaeus argued that the universe came into being and everything that comes into being has a cause (*aition*, 28a4–5, 28c2–3). The cause of the universe was referred to as a craftsman (*dēmiourgos*, 28a6) or maker (*poiētēs*, 28c3) and described as the best of all causes (29a5–6). At 29e1–30a3 Timaeus develops this point by arguing that because the maker was good, he wanted to make the world as good as possible. Because he was good, the creator (*ho sunistas*, 29e1) had no grudge (*phthonos*, 29e2). Therefore he wanted the universe to be as like him as possible (29e2–3). Timaeus says that *this* is the most compelling principle or cause (*arkhē*, 29e4 or *aitía*, 29d7)[4] for the coming-into-being of the cosmos. We are immediately given a demonstration of how god made the world as good as possible. Wanting (*boulētheis*) everything to be good and finding the universe in a state of disorderly motion (*kinoumenon . . . ataktōs*), god brought order to it, believing (*hēgēsamenos*) that an ordered state was 'altogether better' (30a3–6). And reasoning (*logisamenos*) that, taken whole for whole, nothing visible which lacks intelligence will ever be finer (*kallion*) than something intelligent he gave the universe intelligence and a soul, 'so that his work would be as fine and good (*hoti kalliston . . . ariston te*) as it is possible in accordance with nature' (30b5–6).

What is first likely to strike us as problematic in this line of reasoning is Timaeus' apparent assumption that the cause of the universe is a craftsman. To be sure, craftsmanship is one sort of cause, but there are clearly many others. So it may be agreed that everything that comes into being has a cause, but it will not be universally accepted that everything that comes into being does so by the efforts of craftsmanship. In particular, it might be objected that only by *assuming* that the cause of the universe was a craftsman does Timaeus have reason to think that the universe came into being with reference to a model. Craftsmen work by looking to a model, but causes that are not endowed with minds do not. Timaeus has provided no argument to show that the universe did not come into being through mindless causation.

However, the objection misrepresents Timaeus' reasoning from 28a4–29a5. His justification for the claim that the demiurge created the world is a weaker one than the objection presupposes. Timaeus' argument is not the following (A):

[4] As Muller (1998) 86 argues, this passage, together with 29a2–6, 33a3–7, and 38d6–7, suggests that Timaeus observes a terminological difference between the demiurge as the *aition* (αἴτιον) of the cosmos and his thoughts and motives as the *aitíai* (αἰτίαι) for why things are the particular way they are. Cf. also Lennox (1985) 199 for a similar observation about the *Phaedo*. The distinction was first noted by Frede (1987), though in a somewhat different form, cf. Muller (1998) 83–4.

Everything that comes into being has a cause (28a4–6).
The cause of everything that comes into being is either a demiurge looking towards an eternal model, in which case the creation is necessarily beautiful, or a demiurge looking towards a created one, in which case the outcome is necessarily not beautiful (28a6–b1).
But the world is the most beautiful of things that have come into being (29a5).
Therefore (29a4–5) the world was created by a demiurge looking towards an eternal model.

Rather the argument is a weaker one (B):

Everything that comes into being has a cause.[5]
Of the things that come into being, those whose cause is a demiurge who looks towards an eternal model are necessarily beautiful, whilst those whose cause is a demiurge looking towards a created model are necessarily not beautiful.[6]
But the world is the most beautiful of things that have come into being.[7]
Therefore the world was created by a demiurge looking towards an eternal model.

Argument B is different from Argument A in that it allows for causes other than a demiurge. Timaeus does not say, as A would have it, that the cause of everything that comes into being is a demiurge. He says only that 'everything must turn out beautiful when its demiurge looks towards what is always the same and by using some such model produces its form and power, whilst everything whose demiurge looks towards what has come into being and using a generated model necessarily turns out not beautiful' (28a6–b2). In these lines, Timaeus focuses on the relationship between cause and outcome *in the case where* the cause is a craftsman. The point is not to rule out that there might be other causes or even that there might be other causes of beauty or lack thereof. Rather the point is to underline that *when* the cause of something is a craftsman who looks towards an eternal model, *then* the outcome will *necessarily* be beautiful, just as the outcome will necessarily not be beautiful when the cause of something is a craftsman looking towards a generated model. I take it, therefore, that Timaeus focuses on the particular case of causation where the cause is a

[5] πᾶν δὲ αὖ τὸ γιγνόμενον ὑπ' αἰτίου τινὸς ἐξ ἀνάγκης γίγνεσθαι (28a4–5).
[6] ὅτου μὲν οὖν ἂν ὁ δημιουργὸς πρὸς τὸ κατὰ ταὐτὰ ἔχον βλέπων ἀεί, τοιούτῳ τινί προσχρώμενος παραδείγματι, τὴν ἰδέαν καὶ δύναμιν αὐτοῦ ἀπεργάζηται, καλὸν ἐξ ἀνάγκης οὕτως ἀποτελεῖσθαι πᾶν· οὗ δ' ἂν εἰς γεγονός, γεννητῷ παραδείγματι προσχρώμενος, οὐ καλόν (28a6–b2).
[7] ὁ μὲν γὰρ κάλλιστος τῶν γεγονότων, ὁ δ' ἄριστος τῶν αἰτίων (29a5–6).

craftsman because this is the kind of cause that can *necessitate* the beauty of the outcome.

Argument B underlines, then, that craftsmanship when conducted with reference to an eternal model necessitates a beautiful outcome. This assumption may in itself strike us as unwarranted. What is it about craftsmanship that makes it a cause of beauty when it looks towards an eternal model? Timaeus' answer, I think, is that looking towards an eternal model tells the demiurge how to make something ordered and stable. Notice first of all how Timaeus describes the model in the context. He repeatedly emphasizes that the model is always the same (28a2: *aei kata tauta on*; 28a6–7: *pros to kata tauta ekhon blepōn aei*; 29a1: *pros to kata tauta*). The model never changes. In contrast, the demiurge finds a world that is in a state of 'having no rest but in discordant and disorderly motion'. (30b) The demiurge makes the world better by ordering it. Looking at an eternal model can help him do so because such a model is itself stable and ordered. In contrast, looking towards a generated model would not help him in the same way since such a model would itself be subject to change.

Craftsmanship, then, can be a cause of order and hence goodness. This link between craftsmanship and order is familiar from the *Gorgias* 503d7–504a5:

> Take a look at painters for instance, if you would, or house-builders or shipwrights or any of the other craftsmen you like, and see how each one places what he does into a certain order (*taxis*), and compels one thing to be suited for another and to fit to it until the entire object is put together as an organized (*tetagmenon*) and orderly (*kekosmēnon*) thing.

Timaeus builds on just such a conception of craftsmanship as concerned with order.[8] He introduces craftsmanship to explain the cosmos because the cosmos (as the word indicates) is essentially an ordered whole and as such calls for an order-producing cause.

It might be objected that this reconstruction of Timaeus' thought assumes that craftsmanship *must* bring about beautiful and ordered results, whereas Timaeus at 28a6–b2 envisages both the situation in which a craftsman produces a beautiful product and the situation in which the outcome is not beautiful. Timaeus seems to allow that the world could have been created by a demiurge yet still be disordered and ugly. So, the objection goes, Timaeus cannot be inferring that the cause of the universe is a craftsman at 28a6 from the fact (stated only explicitly later at 29a5) that the universe is beautiful.

[8] Cf. Solmsen (1968) 343.

However, the case in which a craftsman produces a disordered object can be taken as a failure of craftsmanship. The point that the craftsman may choose between imitating an eternal being or a generated object is less of a real choice than it may at first appear. First of all, there is the general point that no craftsman worthy of the name would set out to produce something that is less fine (*kalos*) than possible. So surely no genuine craftsman would produce his work whilst looking at a generated model, if it were possible for him to make his work finer by looking at an eternal model. Secondly, Socrates is clear in other dialogues that it is characteristic of the genuine craftsman that he uses the form as his model rather than a particular generated thing. So at *Cratylus* 389a–b he says that the craftsman makes a new shuttle by looking to 'the shuttle itself' (*auto ho estin kerkis*). Also in *Republic* x (596a–599b), he puts it that genuine craftsmen make beds by looking towards the form of bed rather than to a particular 'generated' bed. It is indeed the fact that they look towards the form that makes them genuine craftsmen unlike the pseudo-craftsmen, painters and poets, who look to particulars.[9] Similarly, I would suggest, the implication of Timaeus' distinction between a craftsman who looks towards an eternal model and one looking towards a generated one is not to present these as equally valid expressions of craftsmanship. Rather he means to tell us something about what a craftsman should be doing when he creates an object (look towards a form!) and what we should therefore expect the world to be like if it was created by a craftsman (expect it to be beautiful!).

I have argued that in the *Timaeus*, as in other Platonic dialogues, craftsmanship is seen as a cause of beauty and order because it works with reference to an eternal model. However, this leaves us with another question, why should craftsmanship be the *only* cause of beauty and order? Unless we see it as the only cause, there is no reason to infer from the fact that the world is beautiful, or even the most beautiful thing that has come to be, that the world was produced by a craftsman. This answer is suggested by a later passage, 46e3–6. Here Timaeus says that there are two kinds of cause (*aitía*). The one is, with intelligence (*nous*), a craftsman (*demiourgos*) of fine and good things (*kalōn kai agathōn*), whereas the other produces a disordered outcome (*to tuchon atakton*) when deprived of reason (*phronēsis*). Timaeus mentions only two sorts of cause. There is an intelligent cause, which produces order and beauty, and there is an unintelligent one, which produces disorder. If these are the only possible causes, it seems that we can reasonably infer from the beauty of the universe that its cause was an intelligent

[9] On the distinction between good and bad craftsmanship in *Rep*. x, cf. Moreau (1965) 6.

one, a cause which furthermore, as intelligent, Timaeus appropriately refers to as a craftsman (*dēmiourgos*).

Saying that the craftsman works with reason (*nous*) is for Timaeus really just another way of saying that he looks towards the eternal model. Reasoning (*noēsis*) was already said at 28a1–2 to be that with which we grasp eternal being. Later at 51d–e Timaeus argues from the distinctness of *nous* and true belief to the distinctness of a kind of being that is always the same from what comes into being. So Timaeus holds both that eternal being is the characteristic object of *nous* and, conversely, that *nous* is the characteristic way in which we grasp eternal being. What it means to look towards an eternal model is therefore to use one's reason. So the claim that a craftsman produces beautiful results by looking towards an eternal model amounts to saying that a craftsman with reason produces beautiful and fine things. A craftsman produces fine things by looking towards an eternal model and the way he looks towards such a model is by using his reason. It is perhaps because of this link between craftsmanship and reasoning that Timaeus at 46e4 reserves the term *dēmiourgos* for the cause that works with reason, whereas he just says that the unreasoning causes produce (*exergazontai*) their results.

But why should we accept that *only* the reasoning cause brings about beauty and order? Why should a mindless one not also be able to do so? Timaeus' answer, I suggest, lies in the connection he draws at 46e5–6 between what is produced without intelligence and what comes about by chance. The cause that is deprived of intelligence on each occasion (*hekastote*) brings about a *random* disordered result (*to tuchon atakton*). Now it is important to emphasize that by calling the result 'random' Timaeus does not mean to say that the result is not necessitated by the unreasoning cause. On the contrary, Timaeus will distinguish what has been crafted through intelligence (*to dia nou dedēmiourgēmena*, 47e4) from what comes to be through necessity (*ta di' anagkēs gignomena*, 47e5). If anything, Timaeus tends to refer simply to necessity as the cause in those cases where an outcome has not come about by intelligent design. So there should be no suggestion that the random result referred to at 46e5 is not also necessitated by its cause.[10] Rather when we call an outcome 'random'

[10] Compare the expression 'randomly from necessity' in the following passage from *Laws* x, where the Athenian is referring to a group of thinkers who deny that intelligence played any role in the formation of the universe: 'They maintain that fire, water, earth and air owe their existence to nature and chance, and in no case to art, and that it is by means of these entirely inanimate substances that the secondary physical bodies – the earth, the sun, moon and stars – have been produced. These substances moved at random, each impelled by virtue of its own inherent properties, which

the point seems to be that the outcome was not planned or caused *as such*.[11]

As an illustration of this point consider *Timaeus* 69b. Timaeus has distinguished between a pre-cosmic stage of the universe before god imposed order on the primary bodies and a cosmic stage when fire, earth, water, and air have been endowed with geometrical natures. At the pre-cosmic stage the primary bodies 'had no part in proportionality, unless by chance (*hoson mē tuchē*), nor did any of them in any way merit the names that are now used for them, like fire, water, and so on' (69b6–8). We can imagine, then, that before god imposed order on the primary bodies, some bodies were proportionate. We can also imagine that their proportionality was caused. However, their proportionality was not brought about *as such*. There were processes in the pre-cosmic that brought about such and such changes to the primary bodies, changes which were perhaps occasionally proportionate. However, there were no processes in the pre-cosmos that brought about proportionality as such. And that is why we would describe those cases where proportionate primary bodies were produced as chance events. The point about unintelligent causes, then, is not that they cannot bring about proportionality or order but that they are not, as we might put it, proportionality-producing causes. There is nothing in mindless causes to bring about order or beauty as such, so when they do bring about order we say that it is a chance occurrence. Notice in this connection the addition of 'on each occasion' (*hekastote*) at 46e5. The implication seems to be that these causes produce their results individually. If any order emerges that is an accident. Craftsmanship, in contrast, is essentially a cause of order. So given the choice between these two causes, we naturally look to craftsmanship as the cause of the beauty of the universe.

Notice that the argument, as outlined, does not have the status of a demonstrative argument. It is logically and physically possible that the world came about as a result of mindless causation. But if it did so, its beauty, goodness, and order are in a certain sense left unexplained. For there is nothing we can point to in mindless causes that enables us to see why they brought about something ordered and beautiful rather than something disordered or ugly. The argument for a divine craftsman therefore has the

depended on various suitable amalgamations of hot and cold, dry and wet, soft and hard, and all other combinations that randomly from necessity (*kata tuchēn ex anagkēs*) resulted when the opposites were mixed. This is the process to which all the heavens and everything that is in them owe their birth, and the consequent establishment of the four seasons led to the appearance of all plants and living creatures. The cause of all this, they say, was neither intelligent planning, nor a deity, nor art, but – as we've explained – nature and chance' (889b1–c6).

[11] See next chapter, pp. 93–5 for a fuller account of the point.

status of an inference to the best explanation. That is to say, it is an inference of the following form:

D is a collection of data (facts, observations, givens).
H explains D (would, if true, explain D).
No other hypothesis explains D as well as H does.

Therefore, H is probably correct.[12]

Timaeus' argument for a divine craftsman would be the following application of the inference form:

The world is beautiful, ordered, and good (D).
The hypothesis that a divine craftsman created the world looking to an eternal model (H) explains why the world is beautiful, ordered, and good.
The alternative hypothesis, that the world was created by mindless causation, does not explain D as well as H does.

Therefore it is probably correct that the demiurge created the world by looking at an eternal model.

ARISTOTLE'S ALTERNATIVE

The strength of any inference to the best explanation depends, amongst other things, on how thorough the search was for alternative explanations.[13] So we might ask Timaeus whether the only alternative to intelligent causation is the mindless sort of causation which produces random disordered results. For it may be that there is a form of causation that whilst not intelligent still produces ordered results.

For Aristotle nature is just such a cause. Aristotle shares Timaeus' misgivings about an account of the cosmos which takes its order and beauty to be an accident. However, he does not see craftsmanship as the only possible explanation of natural order, nor is it for him the best explanation of natural order. Consider the following passage from the *Physics*:

> The person who asserts this [sc. that animals came to be at random] entirely does away with nature and what exists by nature. For those things are natural which, by continuous movement originated from an internal principle, arrive at some end: the same end is not reached from every principle; nor any chance end, but always the tendency in each is towards the same end, if there is no impediment. The end and the means towards it may come about by chance. We say, for instance, that a stranger has come by chance, paid the ransom, and gone away, when he does so

[12] Cf. Josephson and Josephson (1994) 5. [13] Josephson and Josephson (1994) 15.

as if he had come for that purpose, though it was not for that that he came. This is accidental, for chance is an accidental cause, as remarked before. But when an event takes place always or for the most part, it is not accidental or by chance. In natural products the sequence is invariable, if there is no impediment. It is absurd to suppose that purpose is not present because we do not observe the agent deliberating. Art does not deliberate. If the ship-building art were in the wood, it would produce the same results by nature. If, therefore, purpose is present in art, it is present also in nature. The best illustration is a doctor doctoring himself: nature is like that. (*Phys*. II.8 199b14–32, transl. Hardie and Gaye)

Like Timaeus, Aristotle objects to the notion that natural order is a chance occurrence. However, Aristotle does not argue on that basis that natural order is caused by craftsmanship or art. Rather he takes nature itself to be the cause. To be sure, Aristotle sees a strong analogy between art and nature: both work for a purpose, a 'final cause', and the purpose is the cause of the orderly arrangement of the product. However, nature is different from art in one crucial respect. The final cause lies within the natural beings themselves. It is their internal nature that causes them to be what they are. In contrast, craftsmen, as a rule, are separate from the work they produce. When a patient enters a doctor's surgery, he is normally a different person from the person who is about to treat him. Doctors usually work to make *other* people healthy. The way the final cause works in natural beings is therefore best compared to the exceptional case where the doctor cures himself, that is to say, where the cause of the patient's health lies within himself. Nature, then, is an internal cause of order, whereas craftsmanship, generally speaking, is an external cause.[14]

Aristotle's natural teleology can thus be seen as an alternative to craftsmanship as an explanation of natural order. Chance (*tuchē*) and craftsmanship (*technē*) are not the only hypotheses one might offer to explain the datum of natural order. Nature itself, understood as an internal cause of being, will also explain natural order. From Aristotle's point of view, rather than being the best explanation of natural order, craftsmanship might then be considered superfluous. We do not need an additional entity, the divine craftsman, to explain natural order. There is a simpler explanation to hand, nature herself.

We can prefer Aristotle's explanation whilst acknowledging that Timaeus' explanation has some force. We can accept that the greater the order of nature the more plausible it is that craftsmanship is the cause. But what we *will* be committed to as Aristotelians is the view that greater natural order

[14] On the distinction between external and internal teleology cf. Depew (1997) 221–2.

makes natural teleology even more plausible than craftsmanship. Compare the following passage from Hume's *Dialogues Concerning Natural Religion*. The speaker is Cleanthes, the dialogues' advocate of the argument from design:

> Look around the world: Contemplate the whole and every part of it: You will find it to be nothing but one great machine, subdivided into an indefinite number of lesser machines, which again admit of subdivisions to a degree beyond what human senses and faculties can trace and explain. All these various machines, and even their minute parts, are adjusted to each other with an accuracy which ravishes into admiration all men who have ever contemplated them. Curious adapting of means to ends, throughout all nature, resembles exactly, though it much exceeds, the productions of human contrivance; of human design, thought, wisdom, and intelligence. Since therefore the effects resemble each other, we are led to infer, by all the rules of analogy, that the causes also resemble, and that the Author of Nature is somewhat similar to the mind of man, though possessed of much larger faculties, proportioned to the grandeur of the work which he has executed.[15]

There are several ways in which Cleanthes' inference can be challenged. We have already seen one. It is stated also by Philo in response to Cleanthes: for all we know, we might as well say that it is the nature of material objects to be ordered 'and that they are all originally possessed of a faculty of order and proportion.' The objection (apart from its sceptical overtones) is Aristotelian in kind. Nature herself is a sufficient cause of order. However, Cleanthes' argument still seems to have a peculiar force in so far as it points to the relationship between the degree of natural order and the likelihood of design. The more order we find in nature the more we feel that it might be the product of craftsmanship. Aristotle too employs the art analogy when he wants to underline the purposefulness of nature. On occasion his language even figures nature as a working craftsman.[16] What may be accepted therefore even by those who reject the inference to design as the best explanation of natural order is that the attractiveness of the craftsmanship hypothesis increases in proportion to the degree of order displayed by nature. That is to say, even if one disagrees with the inference from order to design one may accept that design is made more probable to the extent that order is displayed. However, the Aristotelian would say that natural teleology is made equally more probable. The problem with the craftsmanship hypothesis is that any increase in order makes the alternative to design, natural teleology, equally more likely. But the natural teleology thesis is initially more probable than the craftsmanship hypothesis, because

[15] Quoted from Popkin (1980) 15.
[16] Cf. the expression ἡ δημιουργήσασα φύσις, *PA* 645a9, cf. *IA* 711a18, *PA* 647b5.

it is simpler. There is therefore no increase in the degree of order that would ever be enough to make the design hypothesis more probable than that of natural teleology.

IS THE DEMIURGE SEPARATE FROM HIS CREATION?

I have used Aristotle so far to present an alternative to the explanation of order by craftsmanship. But how different is Timaeus' position from the Aristotelian? And if Aristotle's explanation of natural order is superior to Timaeus', because it is simpler, should we, then, on the principle of charity, try to interpret the *Timaeus* in an Aristotelian manner? To what extent is the distinction between external teleology (the cause of natural order is external to that order) and internal teleology (the cause of natural order is internal to nature) supported by the text? Does Timaeus' demiurge really stand outside the cosmos?

On Cornford's interpretation the demiurge

> is mythical in that he is not really a creator god, distinct from the universe he is represented as making. He is never spoken of as a possible object of worship; and in the third part of the dialogue the distinction between the Demiurge and the celestial gods, whom he makes and charges with the continuation of his work, is obliterated . . . On the other hand, there is no doubt that he stands for a divine Reason working for ends that are good . . . If this Reason is not a creator god, standing apart from his model and materials, where is it to be found? Now this is precisely the question that Plato has refused to answer. It is a hard task, he says [at 28c3–5], to find the maker and father of this universe, and having found him it would be impossible to declare him to all mankind.[17]

Cornford raises and, I think, confuses a number of points in this passage. Firstly, it is not right that Plato refuses an answer. To be sure, Timaeus says that it is hard task to find the father and maker of this universe and impossible for somebody who has found him to communicate him to everybody (*eis pantas*, 28c4). But Timaeus, as Socrates told us (20a4–5), is the complete philosopher and his audience is decidedly not 'everybody' but a highly expert one. Timaeus warns us of the difficulty of our task, not its impossibility, and so proceeds to make a substantive point about the demiurge, that he looked towards an eternal model when he created the universe.

Secondly, Cornford mentions (39) the possibility that the divine Reason is the same as the world soul. However, he stops shy of identifying the

[17] Cornford (1937) 38.

two and there is good reason not to. The world soul, like the world body, is said to be generated by God (34b3–35a1). Timaeus makes the contrast in ontological status between god and the world soul clear at 36e6–37a2: the world soul 'has come to be as the best of the things generated by the best of the ever-being intelligibles (*ta noēta*)'.[18] Furthermore, whilst the world soul may continue existing for all time, its continued existence is contingent on God's will (41a7–b6). In other words, whilst, as far as we can tell, God's eternal existence is caused by nothing else, the world soul's continued existence depends on God. Timaeus could not be clearer that he sees God and the world soul as belonging to different ontological categories.

The description of the demiurge as 'the best of the ever-being intelligibles (*noēta*)' is significant not least because it places him in the same category as the eternal beings on which the demiurge models his creation. The intelligibles are generically described at 51e6–52a3 as distinct from the class of what comes into being and 'always the same, ungenerated and indestructible.' What is grasped by the intellect (*noēsis*, 52a4) 'neither allows anything into itself from anywhere nor does it itself ever go anywhere into another thing'. This characterization of the intelligibles seems to exclude their direct presence *in* the cosmos. In so far as the demiurge is an intelligible he would therefore seem to be separate from the generated cosmos.

Yet God, as Cornford says, clearly has his representatives inside the cosmos, first and foremost, the so-called 'lesser gods' (41a7–d3). However, the conflation of these lesser gods with the demiurge is not as extensive as Cornford suggests. We are repeatedly reminded of the fact that the lesser gods fulfil their creative duties in imitation of the way they themselves were created by the demiurge (69c3–6). True, Timaeus refers rather indiscriminately to god in the singular and gods in the plural after the introduction of the lesser gods.[19] But he has already made it clear that the divine agents responsible for the creation of man are the lesser gods (41a7–d3). There are, then, gods inside nature. Indeed, the cosmos itself is a god (34b8, 92c7). However, these gods are created, perceptible gods, who as created have a different ontological status from the demiurge. The demiurge himself belongs to the distinct class of intelligibles.[20]

I have argued against Cornford's attempt to read the demiurge out of the creation story. The attempt to identify the demiurge with the world soul, or an aspect thereof, is mistaken on ontological grounds. The demiurge

[18] τῶν νοητῶν ἀεί τε ὄντων ὑπὸ τοῦ ἀρίστου ἀρίστη γενομένη τῶν γεννηθέντων.

[19] For the singular cf.: 46e8, 71a4, 74d6; the plural: 47c5, 75b7, 77a3. Cf. François (1957) 299–300, Gerson (1990) 268, n. 87.

[20] Cf. Menn (1995) 11–12.

and the forms on which the cosmos are modelled are ontologically separate from and prior to the created cosmos. Given the ontological distinction between being and becoming we cannot identify the cause of cosmic order with any principle that is internal to the created cosmos. This I take to be the major obstacle to any assimilation of the creation story in the *Timaeus* to a natural teleology of the Aristotelian sort.[21] In so far as an internal ordering principle such as the cosmic soul falls on the 'becoming side' of the ontological distinction it will remain dependent on a being that is prior to and independent of the cosmos.

Whilst this point blocks a reading of the demiurge as an internal principle of order it may suggest another way of getting rid of the demiurge. We may try to identify him with the eternal model or some aspect thereof. The strongest evidence for this suggestion is a passage at 50c7–d3, where the demiurge is apparently missing from a list of three principles needed to explain the cosmos. 'At present (*en tōi paronti*, 50c7), then, we need to distinguish three kinds: what comes into being, that in which it comes into being, and that from which what comes into being arises (*phuetai*) by being imitated. Moreover, it is proper to liken what receives to a mother, that from which to a father, and the nature in between these to an offspring . . .' What makes the absence of the demiurge from this passage particularly pointed is the fact that it is now *being* that is compared to the father whereas before it was the demiurge (28c3). So what has happened to the demiurge? There are two types of answers to this question. The first is that the demiurge is still somehow implied in the account, the second is that he is genuinely absent from the list. One version of the first kind of answer is to say that by referring to the forms as the father, Timaeus does not mean to exclude the demiurge. It is just that by referring to being as father, Timaeus is referring to the forms with reference to which the demiurge produces the likenesses. The demiurge is implied in this account, though not highlighted. Similarly, an Aristotelian might say that the form of bed is the cause of this bed. He would not say this in the sense that a bed can be made without a craftsman but in the sense that it is the fact that a craftsman looks towards the form of bed that is responsible for him producing a *bed*. Referring to being as the father would be a way of referring to the demiurgic activity under its formal aspect. But it is not to deny that there is a demiurge who plays the

[21] There would be *further* relevant differences between Plato and Aristotle's natural teleology even if we interpreted the demiurge as the world soul. For Aristotle the cosmos is not teleologically ordered because of a single world soul. Cosmic order rather emerges out of the actions and interactions of different kinds of natures, some involving soul, others not. For Aristotle's response, in the *De Caelo*, to Plato's world soul; cf. Johansen (forthcoming).

role of what Aristotle would call an efficient cause, that is, something which accounts for how the form is copied in the particulars. The worry with this answer is that it does not do justice to the comparison of the forms with a father. The term 'father' itself is naturally taken to imply efficient causation, as we see in Aristotle. So by calling the ideas 'father' Timaeus can hardly mean to highlight the formal aspect of the demiurge's work in contrast to his role as 'efficient' cause. If anything, calling the forms 'father' suggests that the forms *themselves* are thought of as 'efficient' causes and that we therefore do not need the demiurge to do this job.

This objection might suggest that we should take the demiurge to be genuinely absent from Timaeus' list. If so, there are at least two ways of explaining his absence. The first is that the demiurge has been replaced by the forms. The other (and superior) option, I think, is this. The demiurge is absent because the passage is discussing a state of affairs that obtained before the demiurge created the cosmos. In the passage Timaeus is describing a distinction between three kinds that obtained before the heavens came to be (52d3–4). So he says in the passage introducing the three principles at 48b3–5 that we should consider the nature of the simple bodies before the creation of the universe and he says in his summary at 52d4 that the three principles were there also (*kai*) before the heavens came into being. Timaeus goes on to contrast the state of the world when god is absent (52d2–53b5) with the order that follows god's intervention. The implication is that the three principles are not themselves sufficient to order the cosmos. It seems plausible to say, therefore, that the passage in which eternal being is compared with the father applies to the world considered independently of the demiurge. That, I take it, is the point of the temporal restriction at 50c7 'at present (*en tōi paronti*), then, we need to distinguish three kinds'.

The upshot of this argument is that it is only in the absence of the demiurge that the forms are referred to as 'father'. In the pre-cosmos (understood either temporally as the state of the world before the cosmos was created or counterfactually, as the state the world would now have been in if there had been no demiurge) the simple bodies come to be such and such in imitation of the forms. The simple bodies owe whatever semblance of being they have to their fleeting resemblance to forms. To that extent the forms can also in the pre-cosmos be seen as 'father'. However, the demiurge takes over the role of father when he takes control of the universe and orders the appearances into proper physical objects. In other words, in the pre-cosmos you may refer to the forms as father, but this role is properly taken over by the demiurge when he, with reference to the forms, creates the cosmos. We need the demiurge to explain the transition from a world in which

there were forms but no cosmos. We need the demiurge to explain how the three principles of forms, receptacle and appearances were regimented in the creation of an ordered cosmos.[22]

THE DEMIURGE AS *TECHNĒ*?

I have argued against two attempts to eliminate the demiurge, one by identifying him with the world soul and another by identifying him with the forms. I want to end by tentatively suggesting another way to explain the demiurge.[23] This is not so much an attempt to eliminate him or explain him away in terms of other principles such as forms or the world soul. Rather it is an attempt to elucidate his function as demiurge in theoretical terms that tend to depersonalize him and thereby avoid certain problematic questions about the act of creation.

A demiurge is trivially a practitioner of *dēmiourgia*, craftsmanship, and thereby of a *technē*. The demiurge's use of craftsmanship is central to our understanding of how the world was created. It is part of what makes it possible for us to reconstruct the demiurge's work. If the demiurge had been a rogue craftsman, making unpredictable or spontaneous decisions, we would be in a poor position to retrace his steps. If, on the other hand, he worked according to a craft then his deeds become retraceable by us in so far as we understand the craft. This point relates to the communicability of crafts. A craft, unlike a knack (*empeiria*), lies in the public domain: it can be taught to others.

The generality of craftsmanship may make the particular craftsman seem less important. If Polycleitus and Pheidias both create statues by following the general rules of sculpture, it seems less important whether the statue was made by one or the other. Either sculptor would have made the same statue in so far as the art of sculpture would have instructed them to proceed in the same way. To this extent it was the art of sculpture that created the statue. The particular sculptor acted merely as a craftsman or as a representative of craftsmanship. To be sure, craftsmanship requires a sculptor to work as what Aristotle called the efficient cause but the sculptor is no more than the fact of craftsmanship being actualised at a certain time and place.

If we view artistic production in this way it is tempting to assimilate the craftsman to craftsmanship. Thus Aristotle talks in *Physics* II of

[22] Cf. Menn (1995) 9.

[23] My argument in this section is inspired by comments made by Michael Frede at his graduate seminar on the *Timaeus* at Oxford in Hilary term 2001, though he should in no way be held responsible for how I develop it.

craftsmanship as the moving or efficient cause. We may of course take this statement as Aristotelian shorthand for 'the craftsman is the moving cause *qua* possessor of craftsmanship'.[24] And this, indeed, is the way Aristotle often talks of the moving cause, e.g. Polyclitus, the sculptor, made this statue (*Phys*. II.3 195b12). However another, not necessarily incompatible, way of understanding the claim is to say that it is craftsmanship that is the efficient cause exercising itself through the craftsman. The craftsman is, as it were, possessed by the art more than he possesses the art. It is the presence of craftsmanship that explains why the statue is being made.

This way of talking about the craft rather than the craftsman as productive is not restricted to Aristotle. It occurs repeatedly in Plato. So Socrates says at *Symposium* 188d that the art of divination is *dēmiourgos* of friendship between gods and men. At *Charmides* 174e medicine is *dēmiourgos* of health. At *Euthydemus* 292d Socrates asks if the kingly art makes (*poiei*) man wise and good. And again at *Politicus* 281c1 the Eleatic Stranger supposes that 'the kinds of arts that produce tools (*tas tōn ergaleiōn dēmiourgous technas*) of weaving will lay claim to being a contributory cause of every woven article'. Finally, at *Gorgias* 452c we find the famous definition of rhetoric as a craftsman of persuasion, *peithous dēmiourgos*. On this passage Dodds comments 'the personification [of the craft] is typically Platonic, or Socratic'. Certainly, Plato also talks about the rhetorician as being a craftsman of persuasion, so Plato cannot be suggesting that we should speak only of rhetoric and not the rhetorician as *dēmiourgos*. What is striking rather is that Plato seems to allow that both the *technē* and its practitioner can be described as *dēmiourgos*.

Now the fact that Plato in some contexts talks of the *technē* as *dēmiourgos* might suggest a certain interpretation of the divine demiurge of the *Timaeus*. It might suggest that the divine demiurge can be understood as the manifestation of the craft. Such a reading need not deny that the divine demiurge is in some sense an individual or a person. However, it does underline that what it means for the demiurge to create the world is for the demiurge's *craft* to be exercised. Similarly, there was according to Aristotle a sense in which it is craftsmanship that is productive when the craftsman works *qua* craftsman. Here nothing about the divine craftsman as a person or

[24] *Phys*. II.3 195b21–25: δεῖ δ' ἀεὶ τὸ αἴτιον ἑκάστου τὸ ἀκρότατον ζητεῖν, ὥσπερ καὶ ἐπὶ τῶν ἄλλων οἷον ἄνθρωπος οἰκοδομεῖ ὅτι οἰκοδόμος, ὁ δ' οἰκοδόμος κατὰ τὴν οἰκοδομικήν· τοῦτο τοίνυν πρότερον τὸ αἴτιον, καὶ οὕτως ἐπὶ πάντων. Ross (1950) *ad loc*. suggests the translation 'most precise' for ἀκρότατον. There is no indication of a shift in kind of cause in these lines, such as from efficient to formal. So the suggestion seems to be that the art of house-building is the most accurate specification of the efficient cause.

an individual plays any role in explaining his work. Craftsmanship rather than the individual craftsman is what matters. Whilst this reading does not make the demiurge redundant it does make questions about the *individual* craftsman's motivation extraneous to cosmology.

Now it might seem to be an objection to this reading that the divine craftsman appears to have what Luc Brisson called certain psychological traits.[25] Firstly, the demiurge 'reasons' and 'reflects' and 'thinks'.[26] However, there is also non-psychological reading of these terms. We may think of the architect's reasoning in terms of a representation of the steps required by his craft to bring about a house. In so far as he is an architect his reasoning may be seen as a representation of the means–end structure of his craft. The demiurge's acts of speaking may similarly be understood as representations of commands issuing from the art: when making a statue, make a wax cast first!, then pour in the bronze!, finally, remove the wax! Secondly, the demiurge is benevolent, well-wishing and satisfied with his good results (cf. 29e–30b). However, as we know from Socrates' argument against Thrasymachus in *Republic* I benevolence can be derived from the craft itself. 'Medicine does not seek its own advantage but that of horses? – Yes – Indeed, no other craft seeks its own advantage . . . but the advantage of that of which it is the craft? – Apparently so' (342c). The doctor *qua* doctor looks after his patients, the shepherd *as such* cares for the good of his sheep. Signing up to the Hippocratic oath is not a moral commitment in addition to that of being of doctor. Signing up to the Hippocratic oath is part of what it means to sign up to medicine. It is part of what it means to be a doctor. There is nothing in the description of the demiurge as benevolent to point to the psychology of the individual.[27] When the demiurge turns the creation of other animals over to the lesser gods it is not because creating beings that are less perfect is incompatible with his benevolent feelings. It is because the creation of such beings is incompatible with his superior craft: If the other animals were created by him then they would be immortal (41c2–3).

More importantly, perhaps, pointing to craftsmanship as the cause of the cosmos avoids what one might call Parmenides' challenge:[28] if the demiurge

[25] Brisson (1974) 33.

[26] Cf. e.g. *dianoeisthai*: 32c8; *logizesthai*: 30b1, 34a8, 52d2, 55c7; *nomizein*: 33b7, *hēgeisthai*: 30a5.

[27] Brisson (1974) 32 says: '. . . même si, dans le *Timée*, le démiurge se présente comme une figure distincte, il ne peut, d'aucune façon, être considéré comme un individu'. However, Brisson's rationale for this claim is rather different from mine, in that he sees the individuality of the demiurge as disappearing amongst the plurality of gods involved in the creation.

[28] In honour of fr. 8 lines 9–10: 'and what need would have driven it later rather than earlier, beginning from the nothing, to grow?'

did create the cosmos why did he create it at one time rather than another? This may be an appropriate question to ask of an individual craftsman. What motivated Leonardo da Vinci to paint the Mona Lisa in 1503 rather than years before? It may of course be that Leonardo lacked the opportunity or needed to perfect his craft. But it is hard to see how this could be true of a divine demiurge. If the demiurge is eternal (and it seems that he is as one of the intelligibles) and all the requisite factors (forms, appearances, receptacle) have always been present, then the demiurge would seem always to have had both the opportunity and the motive to create the cosmos. So why did he not create the cosmos earlier? What kept him? Did he not think of it? Did he have other priorities?

This question becomes more urgent if we think of the demiurge as a particular agent. However, if we specify the cause of the cosmos as craftsmanship rather than as a craftsman *qua* individual it becomes clear that it is misguided to expect any biographical or psychological answers to this kind of question.[29] Particular craftsmen may work whenever they happen to have the idea, motivation or opportunity (they may have other priorities). Craftsmanship, in contrast, creates order wherever it can.[30] Craftsmanship itself, paradigmatically represented by the divine demiurge, will exercise itself whenever the opportunity arises.

The upshot of this kind of interpretation is to close the gap between the two sorts of teleology with which I began this chapter. If we view the divine demiurge not so much as an individual person with conscious desires and intentions but as the art personified, that is, if we view the demiurge as working simply in terms of the prescriptions of his art, then we are faced with a sort of teleology that is not necessarily different in kind from the Aristotelian. The main difference between Plato's and Aristotle's ordering principle remains that Plato's craftsman works on nature from without whereas Aristotle's works from within. However, our explanation of the ways in which order is realised in nature need not make reference in either case to conscious desires or intentions. Plato's divine demiurge is in this respect at least not unlike Aristotle's master craftsman, nature.

[29] On the non-psychological character of the craft analogy in Aristotle, cf. Broadie (1990) 397–8.

[30] On the craft being exercised unless something prevents it, cf. Aristotle *Phys.* VIII.4 255b22–3: 'the exercise of knowledge follows at once upon the possession of it unless something prevents it'. Elsewhere, however, Aristotle specifies that the exercise of rational capacities also requires the presence of a desire in the agent, cf. *Metaphysics* 1048a7–15, with Suavé Meyer (1992) 801. I suggested above that Plato tends to present the desire to do good as an aspect of the possession of the craft itself.

WHEN DID THE DEMIURGE CREATE THE WORLD?

I have argued that if we view the demiurge as craftsmanship personified then it is misguided to expect any psychological or biographical answers to the question why he created the cosmos at a particular time rather than another. For craftsmanship (unlike individual craftsmen viewed as such) will exercise its power whenever there is the opportunity. However, in the absence of this kind of answer it might now seem particularly problematic to say that the world was created at a particular time rather than another. For if craftsmanship works to create order whenever possible and the conditions for creating order have always obtained in the pre-cosmos (that is, there have always been forms, chaos and appearances), it seems that we can always ask of the demiurge, why didn't you create the cosmos earlier?

There is, perhaps, a sense in which Timaeus' view of time pre-empts this question. Time itself is an aspect of the creation. As we saw in the previous chapter, time was created with the world as a moving image of eternity. It might be thought that it is wrong to ask for a time before the world was created why it was not created then. For there was no time before the world was created.[31] However, from a post-creation point of view, it still seems meaningful to ask why, if the world is now, say, 10,000 years old, god did not create it so that it is now 11,000 years old. Perhaps the correct response to this question is to deny that there ever was a literal creation of the cosmos. For in that case of course there would be no time when the cosmos first came into being. On such a 'metaphorical' interpretation the world is eternal,[32] and the 'before and after' of the creation story is an explanatory device which separates in time causal factors that have always co-existed in the cosmos. The temporal sequence of the creation story is a metaphor for the causal priority of god or the forms or both to the created world.

Let us return to the passage at 52d2–53b5 briefly discussed earlier. My point then was that the demiurge was the additional factor that explained why a cosmos came into being given the presence of forms, receptacle, and

[31] Cf. Simplicius *in De Caelo* (77) 105.1: 'But that Plato thought that the cosmos was neither created at a particular time nor destroyed at a particular time is clear from what he wrote in the *Timaeus*. First of all, he says quite clearly that time came into being along with the heaven, when he says: "so time came to be along with the heaven"; so there cannot have been time before the heaven. But if this is so, the heaven will not have begun to come to be at a certain time. For time would have preceded it; and there would at all events have been some past time preceding that present time in which the cosmos came to be' (transl. Hankinson (2002)).

[32] As Cornford (1937) 37 thinks. The view was shared by many of the ancient interpreters, including Xenocrates.

appearances. However, let us now consider how Timaeus in this passage presents the temporal sequence of events in the creation of the cosmos:

> Let this account have been passed by my vote, that there are being and space and coming-into-being, also before the heavens came into being.[33] (A) When the nurse of becoming is [or 'was being'] wetted and made fiery and receives [or 'was receiving'] the shapes of both earth and air, and suffers [or 'was suffering'] as many other affections as are consequent on these, it appears [or 'appeared'] in all manner of ways to look at and because it is [or 'was'] full of powers that are neither similar nor in equibalance it is (or 'was'] in no part of itself in equibalance but being weighted in every way unequally is [or 'was being'] shaken by those, and again being moved it shakes [or 'was shaking'] those in return. (B) And different things being moved in different directions are [or 'were'] moved by being distinguished, just as the things that are shaken by winnowing basket and tools for the purification of grain, some of them which are dense and heavy arriving in one place, whilst others that are rare and light by being moved settle in another location. (C) Then (*tote*) the four kinds are [or 'were being'] shaken in this way by the recipient [nurse], whilst it is [or 'was] being moved like a tool for shaking, differentiating for the most part the most dissimilar things themselves away from themselves, whilst pushing most of all the most similar things together in the same place, and that is why these different things also have a different place, even before the universe came to be having been ordered out of them. (D) And before this all these things were irrational and disorderly, but when the attempt was made for the universe to be ordered, fire first and water and earth and air, whilst they had some traces of themselves, they were altogether disposed in the way you would expect everything to be whenever god is absent from something, so these were naturally when he first shaped them with forms and numbers.

In sections (A) to (C) Timaeus describes what was also the case before the cosmos was formed. He then passes on in section (D) to contrast the disorderly way in which the bodies moved before the creation of the cosmos with the orderly way they move when they have been ordered by forms and numbers. The crucial difference between the two stages, (A)–(C) and (D), is then the absence of god in (A)–(C) and his presence in (D). It is because of god that the universe becomes ordered. In (A)–(C) the motions are described primarily by means of present tense infinitives and participles.[34] The use of the present here is primarily aspectual, indicating the processes that the receptacle undergoes. It is indeterminate whether to translate the infinitives and participles as past (as Cornford does) or present (as does Archer-Hind). The indeterminacy seems to follow appropriately from the

[33] The aorist infinitive γενέσθαι might of course be used aspectually, in which case one could translate 'also before the event of the heavens' coming into being'.

[34] The grammatical construction (accusative with infinitive) in (A)–(C) is still dependent on δεδόσθω λόγος in 52d2–3. Only with (D) do we change to a finite construction (εἶχεν, 53a9).

claim that there were three kinds even before the heavens came to be: just as there were three kinds both then and now, so we are describing motions that were both then and now (*prin kai to pan . . . genesthai*, 53a7). In (D), however, Timaeus marks the contrast between the state of the pre-cosmos (*kai to men*, 53a9) and the state of the cosmos (*hote de*) by means of the difference between the imperfect and the aorist: 'And before this all these things were (imperfect *eikhen*) irrational and disorderly, but when the attempt was made (imperfect *epekheireto*) for the universe to be ordered, . . . so these were naturally when he first shaped (aorist *dieskhēmatisato*) them with forms and numbers.' Here Timaeus clearly marks two different temporal stages, what used to be the case in the pre-cosmos referred to in the imperfect and what then happened when the demiurge took the action referred to in the aorist. In other words, the difference between the two stages is presented not just as a logical or causal one but also as a temporal one. The imperfects describe what used to be the case before the god ordered the universe. Compare with this passage 69b5–c2 where Timaeus says of the bodies that 'they did not then (*tote*) participate (imperfect *meteikhen*) in [analogy and commensurateness] . . . but [god] first ordered (aorist *diekosmēsen*) all of these and then composed (aorist *sunestēsato*) this universe out of them'.[35]

On a metaphorical interpretation such 'before and afters' serve simply to illustrate the distinctive causal contributions to the cosmos of the receptacle and the demiurge. The 'before' describes what the appearances would look like without the contribution of the demiurge, the 'after' what it is, and always has been like, when you add the influence of god. However, there is one passage which seems particularly difficult for the metaphorical reading: 34b10–35a1. Here Timaeus corrects himself for having presented the world body as having been created before the world soul:

> Now this soul, though it comes later in the account we are now attempting, was not made by the god younger than the body; for when he joined them together, he would not have suffered the elder to be ruled by the younger. There is in us too much of the casual and the random, which shows itself in our speech; but the god made soul prior to body and more venerable in birth and excellence, to be the body's mistress and governor.

The key thought in this passage is that with being a cause comes temporal priority. As an *archē*, a principle, of the body the soul also has temporal priority. The contrast is therefore not just between prior and posterior in the order of being but also between younger and older *in time* (*neōteran* (34c1) . . . *presbuteran* (34c4)). Timaeus is saying not just that the soul is

[35] This passage further refers us back to 30a3–6 (cf. ὥσπερ γὰρ οὖν καὶ κατ' ἀρχὰς ἐλέχθη, 69b2–3).

the cause of the body but also that it is older than the body because it is its cause. It is this fact of the soul's temporal priority which should be represented in the order of our account. If our account had represented the temporal order of the creation, then it should have started with the soul rather than the body, for the soul came into being before the body, as we can see from the fact that it is the cause of the body.[36] It seems that a metaphorical reading cannot fully do justice to this point since it does not allow for the idea of temporal priority in the creation in addition to that of causal priority. For on the metaphorical reading the temporal sequence of the creation is simply a handy way of setting out the causal sequence in an eternal cosmos.

We seem then to be faced with an interpretative crux. On the one hand, a literal interpretation faces the embarrassing question of why the demiurge created the cosmos at one time rather than another; on the other hand, the metaphorical interpretation does not seem to do justice to the temporal order of the creation.

One possible solution which I want just to outline here is to view the creation as an on-going process in time.[37] On this view the 'before and after' remains temporal but we stipulate no *first* moment of creation. Notice again that besides placing the disorderly motions in the past, the passage at 52d2–53b5 also says that the past disorder was such as one would expect *whenever* (ὅταν, 53b3) god is absent from something. The disorder that used to characterise the world seems not simply to be a fact about the past. It is also the state of affairs that generally does or would characterise the world whenever god absents himself from it.

Even from this general point of view, the disorder might still be considered temporally prior. If the universe is still prone to fall into disorder it will occasionally require the demiurge to set it aright. Or even if it never *actually* falls into disorder it might fall into disorder if it were not for the regular ordering of the demiurge. One might compare the cosmos with a car which either needs the occasional repair job from a mechanic or at least requires regular servicing to prevent it from breaking down. In the first case one would say that actual disorder was temporally prior to the ordering of the demiurge, in the second case one might say that potential disorder was temporally prior. Just as the car mechanic oils the engine *as* it is getting

[36] At *Laws* 892a the temporal priority of soul 'born long before physical things, and is the chief cause of all their alterations and transformations' is categorically stated, this time without any 'mythical' context.

[37] Myles Burnyeat first mentioned this option to me, though he is not, of course, accountable for how I argue for it here.

creaky so the demiurge maintains the order of the universe as it is slipping into disorder. In both cases, then, we say that disorder is temporally prior to order. The point is worth making because it shows that Timaeus in his general talk of what is the case whenever god is absent might be suggesting that a temporal creation story is not a one-off event but possibly a recurrent event.

It is time to attempt to draw some conclusions as to whether or not the creation story, as far as the central passage goes, is to be taken literally. I have argued that the central passage should not be read as dispensing with the demiurge. The working out of the three principles is not meant to usurp the role of the demiurge; rather it presents the principles that god will use in the creation of the cosmos. The viewpoint of the passage is pre-cosmic in the sense that it refers to the three principles that operate in the world but describes them in abstraction from the creative efforts of the demiurge. The account presents the works of the demiurge as later in time than the pre-cosmos. However, we noted the implicit generalization at 53b3, which suggested that the demiurge might repeatedly act (directly or indirectly) to maintain or restore order in the universe. Even in the case of repeated creations, we may still identify a temporal sequence in so far as disorder would precede in time, potentially or actually, the organizing efforts of the demiurge. In other words, even if we accept, as I have argued, the creation account as a temporal one, we may allow for repeated acts of creation. The temporal reading does not require that there be, in absolute terms, a first act of divine creation. The world can be eternal with a state of disorder temporally preceding each act of creation.

The temporal reading so construed would go well with the notion of craftsmanship that I have been developing in this chapter. God is involved in the creation *whenever* there is order, just as on my understanding craftsmanship works to create order *whenever* the necessary conditions obtain. Put differently, if God acts *qua* craftsman, we would expect him to be on standby and restore chaos to cosmos whenever the world slips into disorder. For this is what craftsmanship as such is about: bringing order to the disorder. Since craftsmanship, unlike individual craftsmen as individual, represents a general power to bring about order, pointing to craftsmanship as the cause of the cosmos would indicate that the cause is of a repeatable type. The *Timaeus* would, then, be a story not just about what a divine craftsman did once upon a time, but also a story about what divine craftsmen do at all times.

CHAPTER 5

Necessity and teleology

For Timaeus, as we saw in the last chapter, the world is a product of craftsmanship. However, craftsmanship is not the only cause of the cosmos. Another is 'necessity'. The introduction of this cause occasions Timaeus to make a fresh beginning to his cosmology at 47e3–48b3:

> Now our foregoing discourse, save for a few matters, has set forth the works wrought by the craftsmanship of reason; but we must now set beside them the things that come about of necessity. For the generation of this universe was a mixed result of the combination of necessity and reason. Reason overruled necessity by persuading her to guide the greatest part of the things that become towards what is best; in that way and on that principle this universe was fashioned in the beginning by the victory of reasonable persuasion over necessity. If, then, we are really to tell how it came into being on this principle, we must bring in also the wandering cause – in what manner its nature is to cause motion. So we must return upon our steps thus, and taking, in its turn, a second principle concerned in the origin of these same things, start once more upon our present theme from the beginning, as we did upon the theme of our earlier discourse. (Cornford transl.)

It should perhaps come as no surprise to us that the demiurge needed another principle apart from reason when he fashioned the universe. A craftsman after all needs not just a plan to carry out his work; he also needs materials in which to realize his design. What might surprise us is that these materials are referred to as 'necessity'. For a craftsman presumably works on his materials by changing them according to his plan, but 'necessity' does not sound like the sort of thing that can be changed in any way. How could necessity be persuaded to do anything, since necessity surely means just something that could not be otherwise?

It is the aim of this chapter to consider what Timaeus means by necessity, in what way it serves the divine craftsman as materials and how he understands its relationship to reason. These questions are complicated by the fact that necessity is part of a network of concepts which includes the 'wandering cause' (*hē planōmenē aitía*), the 'contributing' cause (*sunaítion*)

and the 'receptacle'. I shall therefore first attempt to clarify the concept of necessity by considering its relationship to each of these. (The receptacle will also receive separate treatment in the next chapter.) I then consider and distinguish the *Timaeus*' use of necessity in relation to the notion of a necessary condition in the *Phaedo*. Finally, I make some observations on the way in which necessary processes are described by Plato when part of a teleological explanation.

WHAT IS MEANT BY THE 'WANDERING' CAUSE?

Why, in the passage quoted, is necessity linked to 'the wandering cause'? The association of necessity with wandering seems at first blush inappropriate: 'wandering' suggests irregularity whilst 'necessity' suggests regularity and predictability. Some scholars have therefore been led to believe that the wandering cause introduces an element of causal indeterminacy in the universe.[1] Here is Grote, as quoted approvingly by Cornford:

> This word [necessity] . . . is now usually understood as denoting what is fixed, permanent, unalterable, knowable beforehand. In the Platonic *Timaeus* it means the very reverse: the indeterminate, the inconstant, the anomalous, that which can be neither understood nor predicted. It is Force, Movement, or Change, with the negative attribute of not being regular, or intelligible, or determined by any knowable antecedent or condition . . .

I think this is wrong. The first question we need to ask of the wandering cause is in what respect it is 'wandering'. Since Timaeus in the passage quoted wants to contrast the wandering cause with the intelligent cause which seeks to arrange matters for the best, the obvious answer seems to be: the wandering cause is wandering with respect to the aims of the intelligent cause. One implication of the Greek verb *planōmai*, as of the English 'to wander', is to be aimless.[2] In other words, the wandering cause wanders in that it is not directed towards the aims set by the intelligent cause. However, a cause may be wandering in this sense whilst still necessitating its effects. In other words, a wandering cause may very well be deterministic. The key point in so far as the cause is called wandering is that it is not teleological.

One reason why scholars think that the wandering cause does not necessitate its effects is that Timaeus seems to associate it with chance (*to tuchon*)

[1] Cf. Cornford (1937) 171–2 quoting from Grote's *Plato*, III, ch. 36; Sorabji (1980) 207 argues against this view.

[2] Cf. the description of τὸ τῶν σοφιστῶν γένος as πλανητὸν ὂν κατὰ πόλεις οἰκήσεις τε ἰδίας οὐδαμῇ διῳκηκός at *Tim*. 19e2–5.

at 46e5–6. Here (as we saw in the previous chapter) Timaeus contrasts what is produced with intelligence with that which is produced without intelligence on the grounds that the latter is disordered. However, the basis for this contrast is not that the intelligent cause necessitates its results and the unintelligent ones do not. Rather the basis is that the unintelligent cause produces disorder whereas intelligence produced order. The key point is therefore not whether the unintelligent cause necessitates its effects or regularly produces them but whether those effects themselves qualify as ordered. Timaeus' claim (as I argued in the last chapter) is that effects produced by unintelligent causes are disordered whereas those brought about by intelligence are ordered.

It is important, therefore, to distinguish Timaeus' notion of order (*taxis* or *kosmos*) from the regularity by which cause and effect are conjoined. Such regularity is a property of the relationship between a certain kind of cause and a certain kind of effect. Order, on the other hand, is a property of a certain kind of effect or outcome. Entirely regular mechanisms often produce results that are disordered. So, for example, when you take your clothes out of the washing machine their arrangement will be in no particular order but the way in which each item has arrived in its place is the outcome of entirely regular physical processes. Similarly, for Timaeus, the necessity that ties cause and effect is no guarantee that the effect itself is ordered or part of something ordered. Order, for Timaeus, implies beauty and proportion (cf. 30a). It is not simply a term for the regularity or reliability by which an outcome is produced.

That the necessity Timaeus has in mind qualifies the relationship between cause and effect is apparent from the way he draws the contrast between the intelligent cause and the contributory causes (*sunaítia*) at 46d–e. The contributory causes are those 'which are moved by others and *of necessity* set yet others in motion' (46e1–2). Here the necessity is an attribute of the relationship between what moves and what is moved. The necessity in question is that by which a cause brings about its effect. This kind of necessity might be called 'backward-looking' in so far as the effect was made to happen because the cause was present. The cause does not obtain in order for the effect to take place. The cause is in no way sensitive to the fact that it will bring about this effect. The contributory causes are, as Timaeus puts it, 'incapable of any plan or intelligence for any purpose' (46d4).[3] In contrast, intelligence is a 'forward-looking' cause. Intelligence acts exactly so that other things may come about. Timaeus refers to this aspect of intelligent agency as *pronoia*, 'forethought' (44c7). An intelligent cause is informed by

[3] λόγον δὲ οὐδένα οὐδὲ νοῦν εἰς οὐδὲν δυνατὰ ἔχειν ἐστίν.

the results it brings about. It acts in a certain way because so acting brings about certain results. Let us now try to be clearer about the relationship between the two specifications of necessity as 'wandering' cause and as 'contributory' cause. The 'wandering' cause is a description of necessity in so far as it operates without regard for the outcome. 'Contributory' cause, meanwhile, is a description of necessity in so far as it has been persuaded by intelligence to work for the good. In the *Timaeus* there are, therefore, two versions of necessity. There is the necessity that reason uses as a contributory cause for its ends. There is also the necessity that has not been persuaded by reason. The contributory causes fall back into this necessity, as Timaeus says, 'on each occasion when they are deprived of thought' (46e4–5). Remove the *aitía* and the *sunaítia* collapse into the sort of necessity that produces disorder. So to put it more precisely than I did at the outset there are not two but strictly speaking three causal players in Timaeus' account:[4] 1) the *aitía*, 2) necessity in so far as it works for an *aitía*, 3) necessity in so far as it does not work for an *aitía*.

One reason why it is important to maintain that necessity *qua* wandering does not introduce causal indeterminacy is the following: if calling necessity wandering implied indeterminacy, then it is hard to see how it could *also* perform the job of contributory cause. For the demiurge, like any craftsman, needs reliable materials. A builder needs to know that the bricks will support the roof and withstand rain and heat. A cook needs to know that flour will thicken the sauce. If the wandering cause were wandering in the sense of indeterminate, then it would be useless for world-making. Reliability is of key importance to necessity's potential as a contributory cause.[5] We should not take the designation 'wandering' in a way that deprives necessity of this potential.

NECESSITY AND THE RECEPTACLE

It sometimes causes puzzlement that whilst Timaeus refers to the works of necessity as what the demiurge took over when he created the cosmos (68e), he also presents the demiurge as ordering the 'simple' bodies so as to make them as beautiful as possible (53b, 56c).[6] We can therefore ask whether the so-called 'works of necessity' operate independently of god or whether

[4] As Strange (2000) 401–2 notes.

[5] A point made by Morrow (1965) 428.

[6] Cf. Strange (2000) 403: 'Plato indicates that all these things are to be explained by appeal to Necessity (69e1). This is, however, not strictly true. Reason, in the person of the Demiurge, intervenes at 53b to give regular geometric shapes to the inchoate traces (ἴχνη) of the elemental bodies in the Receptacle. Timaeus insists that since the Demiurge is perfectly good, he gives them the finest shapes possible (53e1–6: cf. 53b5–6) . . . This is a teleological explanation, involving Reason.'

they are the result of god's creating the simple bodies the way he did. The answer, I think, is that the demiurge first creates the simple bodies and then works as a craftsman with the necessary processes that arise out of the nature of the simple bodies. As often in craftsmanship, craftsmen have to prepare their materials in advance of working with them in order to make them useful for the task in hand. So a builder may have to make the bricks before he can build the house, or a chef may have to make the stock before he can make the sauce. A craftsman may have to ensure that his materials have the properties required to serve as materials for building, cooking, etc. The builder needs to make sure that the bricks are hard, durable, impervious to moisture, and so on. In those cases, craftsmanship is not just a matter simply of assembling materials which already come ready-made and fit for the purpose like a do-it-yourself kit. Rather craftsmanship is involved also at the lower level of shaping the materials so that they will be useful for assembly. This is true also of the divine craftsman. When he set about creating a cosmos the world was, to put it bluntly, a mess (cf. 30a4: *kinoumenon plēmmelōs kai ataktōs*). The receptacle was characterized by the disordered 'motions' of traces (*ikhnē*, 53b2) of earth, water, air, and fire. The four elements did not exist as such since they had no 'natures' of their own. The semblances of the elements that might appear in different parts of the receptacle were such as an external observer, a god, say, might recognize as likenesses of real earth, water, air, and fire. Since the appearances had no real nature, their 'motions' were similarly phantasmal. A semblance of fire might appear here, a trace of water there, but there was no clear way of determining the progress of their appearances in different areas of the receptacle. To talk of the 'motions' of pre-cosmic earth, air, water, and fire is therefore as much an approximation as to talk of the appearances as 'earth', 'air', 'water' and 'fire'. For to ascribe motion in any proper sense to these traces would be to ascribe a kind of determinate behaviour that they could not display given their lack of stable natures. To be sure, even in the pre-cosmos the receptacle tends to separate bodies on the principle of 'like to like'. But again talk of bringing together like with like is in the case of the pre-cosmos something of a retrojection from the condition of the cosmos. For there is no inherent likeness between pre-cosmic appearances since they have no internal properties of their own. Rather the principle of like to like only gains proper purchase once it can operate on bodies with natures in the cosmos. This, indeed, is one of the reasons why the debate which goes back at least as far as Plutarch as to what caused motion in the cosmos prior to the creation of soul can be misleading. Timaeus' position would be that since there is no proper motion before the creation of the

cosmos and hence before the creation of soul, there is no proper cause of motion in the pre-cosmos. In this sense, the 'motion' in the pre-cosmos does not present a challenge to the claim that the soul or reason is the cause of motion *proper*.

We need to understand necessity more clearly in relation to the distinction between the cosmos and the pre-cosmos. For failure to separate these two stages of the creation story makes it harder to understand the nature of Timaean necessity. Necessity is a product of the creation, not a precondition of it. There are no necessitating causes in the pre-cosmos because there is nothing in the pre-cosmos with sufficient reality to possess causal efficacy. Necessary processes only come into being once the demiurge has created the 'simple' bodies. Necessity is a function of an ordered universe in so far as it is only once bodies have determinate characteristics that they can act as necessitating causes. It is then a further stage in the creation story when the demiurge takes over the necessary processes and employs them as contributory causes in creating a fully ordered cosmos.

One reason why readers have the impression that necessity arises simply out of the pre-cosmic motions in the receptacle is no doubt that Timaeus proceeds at 49a to discuss the receptacle almost immediately after the introduction of the principle of necessity at 47e. Timaeus' train of reasoning may look like the following: the cosmos is a product of reason persuading necessity. We understand necessity by looking at the state prior to the creation of the cosmos. In particular necessity is the necessity of the motions of the appearances in the receptacle before the creation of the cosmos. That state of the pre-cosmic receptacle therefore shows the state of necessity before reason came along and persuaded it to work for the best.

On my reading the account of the pre-cosmic receptacle does not itself provide the explanation of necessity. Rather it is preparatory to this explanation. We need the account of the receptacle before we can understand the composition and motions of the simple bodies in the cosmos. For we need to understand the receptacle before we can understand how the simple bodies occur and move in space. That is why Timaeus discusses the receptacle first before he explains the composition of the simple bodies. He chooses to discuss the state of the receptacle before the creation of the cosmos because that is how we can best see how the receptacle as such operates. By looking at its state before the imposition of order on the world we can best understand what it is that the receptacle distinctively brings to the creation.

The reading I suggest explains why there is from *Tim*. 48a7 in fact no mention of necessity or necessary processes until the creation of the simple bodies is complete. Nowhere in the description of the receptacle and its

chaotic motions is necessity mentioned. Timaeus reintroduces necessity only at 55e–56c, when he has already described the composition of four kinds of geometrical solid. He now proceeds to match them with earth, fire, water, and air. His criterion for matching solids to simple bodies is the degree of mobility that *necessarily* follows from the geometrical composition of the solids. It is necessary (*anagkē*, 55e2) that the figure with the most stable composition is also the most immobile and plastic of bodies. But the square is *necessarily* (*ex anagkēs*, 55e7) a more stable base than the triangle. Accordingly the figure that is composed of squares, i.e. the cube, is best assigned to earth, which is the least mobile of the four bodies. Further, it is necessary (*anagkē*, 56a7) that the figure that has the fewest faces is naturally the most mobile, since it has the sharpest edges and it is necessary that it is the lightest since it is composed of the smallest number of similar parts. That is why this is assigned to fire as the most mobile body. Necessity thus attaches to the manner in which having certain properties follows from having a certain geometrical composition. Necessity here arises out of the geometrical nature of the simple bodies.

That is why Timaeus does not deploy the notion of necessity until god has created bodies with natures that can, so to speak, be *carriers* of necessity. Timaeus first shows how the 'simple' bodies were composed in such a way as to have determinate natures. Once endowed with determinate natures, the affections (cf. *pathē*, 48b5) that bodies and their compounds undergo can be seen as necessary given their natures. It is these affections that are referred to as the works of necessity and which need to be persuaded by God to work for the good. Necessity should therefore not be identified with the irregular and unpredictable 'motions' of the pre-cosmic receptacle.

To sum up my argument so far: I have argued that the descriptions of necessity as the 'wandering' cause and as the 'contributory' cause are compatible. 'Necessity' refers to the necessity by which a cause brings about its effect. Such necessity is 'backward-looking' in that the cause does not obtain in order for the effect to occur, rather the effect occurs simply because the cause obtains. It is appropriate to call such causation 'wandering' in so far as it does not select for particular ends and is in that sense aimless. Put differently, to call a cause 'wandering' primarily means that it is not as such teleological. However, such necessitating causes may be employed by the demiurge in order to bring about certain ends that are rationally desirable: order, beauty, goodness. If so, they qualify as 'contributory' causes in relation to the ends that they help bring about. Further, I have argued that the usefulness of the contributory causes as such requires that they necessitate their effects in a regular and predictable manner. The regularity

of this causation, in turn, arises out of the ordered natures of the simple bodies.

PERSUADING NECESSITY

Necessity, as we have seen, works as a *sunaítion* when it has been persuaded to bring about the ends set by reason. But what does it mean for reason to 'persuade' necessity? And what does necessity have to be like in order to be persuadable? The main clue to the character of this persuasion seems to lie in the contrast between persuasion and force.[7] In the creation of the world soul (35a7–8), the demiurge had to use force (*bia*) in order to bring together the same and the different because they were hard to mix (*dusmeikton*). In contrast, it is clear that the demiurge works on necessity as a willing subject. The implication that the persuasion of necessity is voluntary is made explicit at 56c, where the demiurge organized the combinations and motions of the elementary triangles 'in whatever way the nature of necessity submitted to by *willing* persuasion (*hekousa peistheisa*)'. It is tempting to think that if necessity is voluntarily persuaded it must have psychological powers, perception, will, understanding, or what have you. Indeed, the idea that necessity can be persuaded has been used to associate necessity with an irrational world soul.[8] However, there is one passage in particular that makes it difficult to ascribe any psychological faculty to necessity. At 46d–e Timaeus pairs off the *aítion* with what has mind and soul, and which is therefore invisible, whereas the *sunaítia* are associated with visible bodies. If necessity (as suggested by 46e2) is also a property of bodily motion, then it is hard to see, given the soul/body contrast, how necessity could also have attributes of soul.

Instead, I would suggest that Timaeus refers to the persuasion of necessity as voluntary in so far as necessity is made to behave in accordance with its own nature. Compare here the notion of the voluntary in Aristotle's ethics. One condition for an action to be voluntary is that its cause be internal to the agent.[9] Similarly, I would suggest that we take reason's persuasion of necessity to be voluntary just in the sense that necessity is persuaded to behave in a way that manifests its internal nature. To flesh out what the 'internal nature of necessity' would mean we need again to look to the nature of the simple bodies, since it is out of their geometrical composition that the necessary motions arise. In other words, to say that necessity was voluntarily persuaded amounts to saying that god worked with the motions

[7] Cf. Morrow (1965) 429. [8] Cf. Morrow (1965) 437. [9] *Nicomachean Ethics* III.1.

that the simple bodies, given their geometrical composition, necessarily give rise to.

One might wonder what difference the persuasion of necessity makes if it simply consists in letting the simple bodies and their compounds move according to their own natural inclinations. Surely, god's persuasion *alters* the motions of bodies so that they lead to the good in a way they would not otherwise have done. But if so, the demiurgic persuasion cannot *just* consist in allowing the simple bodies to move as is their wont. It must also lie in somehow making the motions better or more ordered than they otherwise would have been. I have been arguing against the idea that necessity moves in an irregular and unpredictable way before it is regulated by god. But surely this reading has the advantage that it explains how the demiurgic persuasion makes a difference to the motions of the simple bodies. In contrast, it seems that on my reading, the demiurge just rubber-stamps the necessary behaviour that the simple bodies are engaged in anyway, given their natures.

The objection is correct as far as it goes but calls for a more precise understanding of the role of the demiurge. As I have argued, necessity arises out the nature of the simple bodies. But the nature of the simple bodies has itself been selected by the demiurge out of the various possible geometrical compositions. The demiurge chooses one kind of composition for each body because of its beauty, according to his brief of making the cosmos as beautiful as possible. In that sense, the compositions of the simple bodies are to be explained teleologically. However, from these compositions necessarily arise properties that have not themselves been selected for their beauty or order. So, as we saw, mobility necessarily arises in a body that is composed of few faces. The demiurge does not select these properties as such, but they arise as necessary consequences of his selection. Put differently, the necessary attributes are not themselves teleologically caused though they do follow from attributes that are so caused.

Aristotle's explanation of eye-colour provides an illustrative parallel.[10] Aristotle explains why the organ of sight is made of water by reference to the transparency of water. For it is *qua* transparent that the eyes enable us to see. In other words, the explanation of the watery composition of the eyes is teleological. However, given that the eyes are made of water they will have a certain colour, say, blue or brown. For given the nature of water it is necessary that a certain amount of it will have a certain colour. However, eye-colour as such does not contribute to sight and is therefore not

[10] Cf. *Generation of Animals* v.1 778a35, b16–19; Johansen (1998a) 103–5.

teleologically explained. The parallel between Aristotle and Timaeus is this: just as for Aristotle eye-colour, which is not teleologically explained, arises necessarily from the property of being made of water, which is teleologically explained, so for Timaeus attributes of bodies (such as the moveability of air) arise by necessity from the geometrical properties of the simple bodies, which are themselves teleologically explained.

Given the nature of the simple bodies and their various necessary properties, motions, and interactions, the demiurge can now build up his cosmos by making further selections amongst the various possible combinations of simple bodies. Like an artist painting a tree he can choose to mix blue with yellow knowing that it will necessarily give rise to green or he can mix red with yellow knowing it will make orange. What the demiurge cannot do is to make blue and yellow turn into, say, pink. What he *can* do is to choose which colours on the palate he wants to mix. Choosing, mixing, and co-ordinating the various necessary processes that are available to him given the nature of the simple bodies in accordance with his notion of what is best, *that* is how the demiurge persuades necessity.[11]

Here is a well-known example of such a creative choice. The example comes from the third part of the dialogue, 69a–92c, referred to by Cornford as 'the co-operation of reason and necessity'. The demiurge chose to cover those parts of the body that house the intellect with the thinnest bone and flesh. The reason, Timaeus says, is

> that this frame, which, is born and compacted of necessity (*ex anagkēs*), in no wise allows dense bone and much flesh to go together with keenly responsive sense-perception. For if these two characters had consented to coincide (*eiper hama sumpiptein ēthelēsatēn*), the structure of the head would have possessed them above all . . . but as it was, the craftsmen who brought us into being reckoned whether they should make a long-lived but inferior race or one with a shorter span but nobler. (75a7–c2)

The lesser gods here have a choice whether they want men with a thick skull and greater longevity but reduced intelligence or whether they want men with a thin skull and greater intelligence but a shorter life span. What they cannot have given the nature of the materials is a man with a thick skull and great intelligence. For *this* necessity will not allow. The gods' selection here ranges over sets of characters. The character in each set necessarily implies the other characters in the set and necessarily excludes the characters in other sets. The craftsmen can choose which set they want, but they cannot choose which characters compose each set.

[11] Again, I am in broad agreement here with Morrow (1965) 431.

The notion of persuasion in itself implies that the principle of necessity has a certain sort of rationality. Thus Timaeus qualifies the persuasion of necessity as 'reasonable' (*emphrōn*, 48a5). The epithet serves immediately to distinguish this kind of persuasion from other more negative notions of persuasion, as familiar, for example, from the *Gorgias*. The idea that the persuasion is of a benign sort is reinforced by the claim at 48a3 that necessity is persuaded to help bring about what is best. Notice further that *emphrōn* was also applied only two pages back to the 'intelligent' cause at 46d9. Using the same term for the persuasion of necessity suggests the susceptibility of necessity to the kind of rationality that characterizes the intelligent cause.

Again it is tempting to ascribe psychological powers to necessity in order to explain this susceptibility to reason: surely in order to be persuaded one needs a faculty of understanding of some sort. Again this temptation ought to be resisted. For, as we saw, necessity is presented as a function of what is corporeal and visible where the corporeal is contrasted with soul and what has reason. However, there is a way of construing necessity's amenability to reason in a way that does not attribute any notion of understanding to it. Let us start by recalling Aristotle's distinction in *Nicomachean Ethics* 1.13 1102b14–1103a3 between active and passive reason. Passive reason is the ability *to follow* rational orders. In the *Ethics* Aristotle certainly takes passive reason to characterize a part of the soul. However, we can also imagine something that has the ability to follow or comply with rational commands without having any psychological faculties. So a machine, such as a computer, can follow a set of logical commands not because it has a soul but because it operates according to a logarithm. What is important here is that the machine has a rational structure that enables it to carry out rational commands. Similarly, I would suggest that necessity is capable of following the command of reason because necessity attaches to bodies that themselves have a rational, geometrical structure and as such are capable of complying with the instructions of reason. If so, we have, by a different way, again been led to the conclusion that necessity relies on the rational structure of the simple bodies.

I have so far in this chapter been at pains to tie necessity to the nature of the simple bodies. The behaviour of these bodies is regular but crucially not teleological without the further ordering of the demiurge. Necessity is amenable to such ordering but it is not itself a teleological cause. None of this is of course to say that for Plato the physical world is perfectly regular or rational. It has been my point only that it is not because of the principle of necessity that causal irregularity enters the world.

Such irregularity is a remnant rather of the time before God made the cosmos.

THE RELATIONSHIP BETWEEN THE *TIMAEUS*' AND THE *PHAEDO*'S ACCOUNTS OF NECESSITY

As many scholars have pointed out,[12] Socrates finds in Timaeus someone who can teach him about causes. Timaeus explains to Socrates how the universe was composed in the best possible way. In that sense, the *Timaeus* is the fulfilment of the teleological project that Socrates envisaged and abandoned in the *Phaedo*. One passage in the *Timaeus*, in particular, provides a link with the *Phaedo*: 46c–d. Here Timaeus says that most people take processes such as heating and cooling, dilating and condensing to be causes when in fact they are only *sunaítia*, '*co*-causes' (plural of *sunaítion*). Scholars have generally, and rightly, I think, taken this to echo the *Phaedo*. However, some scholars have also, wrongly, I think, simply identified the *sunaítia* of the *Timaeus* with the 'necessary conditions' of the *Phaedo*.[13]

In his famous 'autobiography' at *Phaedo* 96a6–99d2. Socrates distinguishes between a cause (*aitía*) and that without which the cause would not be a cause.[14] That without which the cause would not be a cause I shall refer to as the 'necessary condition'.[15] Socrates explains the difference between a cause and a necessary condition as follows. The cause of his sitting in prison is his belief that it is better for him to submit to the judgment of the Athenians than to run away. The necessary condition of his sitting in prison is that his bones, sinews, flesh, and so forth, can be stretched and bent in a certain way. Socrates' bones, etc. are *merely* a necessary condition. For, as Socrates says, they would have been on their way to Megara if Socrates believed *that* to be the best course of action. Socrates' bones, etc. do not explain why he is sitting in prison rather than running to Megara. So his bones, etc. do not explain why he is sitting in prison. Socrates therefore insists that it is 'completely absurd' to call the bones, etc. 'the cause'.[16] Nevertheless it has, Socrates suggests, been a regular mistake

[12] For example, Cornford (1937) 174–5; Sedley (1989) 359.

[13] E.g. Burnet (1911) 106; Taylor (1928) 303.

[14] Vlastos (1973) 76–100 argued that we should take *aitía* in the *Phaedo* to mean 'reason' rather than 'cause'. I prefer, in line with Sedley (1998b) and Muller (1998), to think of *aitíai* as causes. It is, however, essential to Plato's thinking about causation that such causes can also work as 'explanations'. A good reason for dismissing a candidate as a cause of an event is, therefore, that it does not explain that event.

[15] *Phaedo* 99b3–4: ἐκεῖνο ἄνευ οὗ τὸ αἴτιον οὐκ ἄν ποτ' εἴη αἴτιον. This is the origin of the expression *conditio sine qua non*; cf. Burnet (1911) 106.

[16] λίαν ἄτοπον, 99a5.

of natural philosophers to think that necessary conditions are causes of natural phenomena, and that is why he was unable to find anybody that could teach him the real causes of natural phenomena. Since he himself could not find the causes either (99c–d), he gave up the study of natural philosophy.

Notice first of all a difference of terminology between the *Phaedo* and the *Timaeus*. The *Phaedo* said that it would be 'completely absurd' to call the necessary conditions '*aitíai*'. Yet Timaeus not only calls his necessary processes '*sunaítia*'. He also says that the necessary processes are one of two kinds (*genē*) of *aitía* (46d6–e6). So Timaeus does what the *Phaedo* forbade: he calls the necessary processes *aitíai*. How do we explain the difference? The answer is simple. Timaeus says that we should find the reasons of intelligent nature *first* and the reasons to do with necessary processes *second*. The order is important. For once we have found the reason 'of intelligent nature', the necessary processes can be seen as causes in so far as they contribute to the intelligent reason. Once we have found the *aitía* of intelligent nature we can call the necessary processes *sunaítia* in so far as they assist this *aitía*. Or, alternatively, we can call them 'another kind of *aitía*', as Timaeus also does. By contrast, Socrates in the *Phaedo* could find no *aitía*. So he could never see the necessary conditions as *sunaítia*. To call something a *sunaítion* presupposes that you have already found the *aitía*. In the *Phaedo* the necessary processes in nature could play no part in a teleological explanation because the starting-point for such an explanation, the *aitia*, was missing. So they remained *mere* necessary conditions. Taylor argues that Timaeus' distinction between the *aitía* and the *sunaítia* coincides with the distinction of the *Phaedo* between the reason and the necessary condition.[17] But this is to ignore the crucial difference that the necessary conditions in the *Phaedo* would include both what would count as *sunaítia and* all other necessary conditions in the *Timaeus*. For in the *Phaedo* there is no *aitía* by reference to which the two sorts of necessary condition can be distinguished. In the *Phaedo* the difference between an instrumental necessary condition and what one might call a 'mere' necessary condition disappears. For both would fall under the rubric of 'that without which the cause would not be a cause'.

In the *Timaeus* we can draw the distinction, for example, at 73e–74b.[18] The gods created our bones to protect the bone marrow. This is the *aitía* of bones. They made the bones by burning some earth in fire and dipping it in water. They then moulded the bone round the marrow. Since the bone

[17] Taylor (1928) 33. [18] Cf. Cornford (1937) 175.

is hard it can serve as a *sunaítion* for the protection of the marrow. Because of its composition the bone is also brittle and inflexible. However, being brittle and inflexible contributes nothing to the protection of the marrow. Rather it requires that the marrow be further protected by a cover of flesh and that sinews be added to make the bones more flexible (74b). Having a brittle and inflexible cover around the marrow is here a necessary condition of having a bony cover. You cannot have the hardness of bone without also having its brittleness and inflexibility. However, having a brittle and inflexible cover is clearly not a necessary condition in the sense of a *sunaítion*, since the brittleness and inflexibility of the bone contributes nothing to the protection of the marrow. On the contrary, these qualities create the need for further protection. So in this passage we see the difference between necessary conditions that are chosen by the gods as a means to an end and those necessary conditions that do not contribute to the end as such but are, as I put it, *mere* necessary conditions.

The *Timaeus* in this way presents a more nuanced picture than the *Phaedo* of the notion of a necessary condition, a picture that distinguishes between necessary conditions that contribute to an end and those that do not. Take the fact that S is P to be a contributory cause and necessary condition of S being Q. Saying that S is P is a necessary condition of S being Q logically means that if S is Q, then also S is P. Assume now also that if S is P, then S is R. But, then by the rules of entailment, if S is Q, then S is R. In this case we can say that S being R is also a necessary condition of S being Q. But it is by no means clear that being R is also therefore a *contributory cause*, in Timaeus' sense at least, of S being Q. For being R may be causally irrelevant to S being Q, as we saw in the case of the cover around the marrow being brittle because it was hard.

It might be objected that even if Socrates does not make clear the distinction in the *Phaedo* between an instrumental necessary condition and a mere necessary condition it is surely the former that he is referring to by 'that without which the cause would not be a cause'. So in Socrates' example the composition of his limbs surely is causally relevant to his sitting in the prison. For if his limbs were not composed of bones set in joints surrounded by sinews and flesh they would not serve him in sitting down. However, Socrates' point that these same bones would have run off to Megara if he had thought it better surely illustrates that there is nothing in the description of the limbs that particularly links them to *this explanandum*, Socrates' sitting in prison. There is no explanatory link between the necessary conditions as described and Socrates' sitting in prison. This is the fundamental difference between a mere necessary condition and a contributory cause. A

contributory cause explains, together with the *aitía,* the *specific explanandum* at hand. In contrast, Socrates' description of his limbs is neutral as to any specific use he might make of them. His limbs' ability to stretch and bend might as well contribute to his running to Megara. The description of the necessary conditions in the *Phaedo* is in no way indexed to a specific *explanandum*.[19] That is why the necessary conditions as described in the *Phaedo* would not qualify as contributory causes in the *Timaeus*' sense.

SPECIFYING THE CAUSE (*AITÍA*)

Timaeus first introduces the distinction between *aitía* and *sunaítion* (46c7) to point out that the processes of vision he has been describing were only *sunaítia* which god used to bring about the best.[20] To find the real *aitía* we need to look beyond such processes as compression and dilation, heating and cooling. However, what exactly Timaeus takes the *aitía* to be in relation to vision, or what exactly it is an *aitía* of, is not immediately clear from what follows. We might expect the effect of the *aitía*, what it is of, simply to be the eyes. But this is never exactly what Timaeus says. When he first uses *aitía* in connection with the eyes at 45b3–4, it is to specify the *aitía* why the lesser gods fastened light-bearing eyes. So here the *explanandum* is not simply the eyes but *that* the gods gave us eyes. As far as the nature of the *aitía* goes we would expect from his general preamble (46c7–e6) that it is something that has *nous* and therefore soul (cf. 46d4–6). Further, we would expect the *aitía* to be a craftsman of fine and good things with *nous* (46e4–5).

How do these expectations bear up in the light of Timaeus' account of the *aitía* at 46e6ff? Having distinguished between the two intelligent and unintelligent kinds of *aitía*, he directly proceeds as follows:

> Let, then, the contributing causes (*summetaítia*) of the eyes by which they have come to have their current power have been stated. After this we need to say what their greatest contribution (*ergon*) to our good is, because of which (*di' ho*) god has given them to us. (46e7–47a1)

[19] Cf. Sedley's third Law of Causation in Sedley (1998b) 121: if x causes anything to be F (whose opposite is un-F), then, 'x must never cause anything to be un-F'. So, for example (122), 'bones and sinews were clearly not all along such as to bring about the effect of sitting in prison, because they are just as suited to the (presumably) opposite activity of running away from prison (98e5–99a4)'.

[20] This distinction seems required partly because Timaeus himself began his account of vision by saying that the following was the *aitía* of the gods' giving us eyes, after which he described the mechanisms of vision, cf. 45b3–4: τοιᾷδε ἐνδήσαντες αἰτίᾳ.

Timaeus' idea must be that the other kind of *aitia*, the intelligent one, will now be stated. So the *aitía* will be given if we can say 'what the greatest contribution of the eyes is, because of which god gave them to us.' This seems to confirm that the *explanandum* is that the gods gave us eyes. However, it also suggests that the *aitía* of why god gave us eyes can be identified by finding the good that vision does. And that seems to be the reason why Timaeus goes on in the next lines to tells us about the greatest benefit that the eyes offer:

> Sight of day and night, of months and the revolving years, of equinox and solstice, has caused the invention of number and bestowed on us the notion of time and the study of the nature of the universe; whence we have derived all philosophy, than which no greater good has ever come or shall come to mortal man as a gift from the gods. This, then, is the greatest benefit of the eyes. (Cornford transl. with alterations)

In these lines Timaeus is describing the good that vision produces. He refers to the good as the gift of the gods. It is a close step from saying that the eyes perform a great service to us and that the gods have given us the eyes to saying that the gods have given them to us so that they will perform this service. But Timaeus is not yet saying this. He has not yet given the greatest contribution of the eyes as the *aitía* of the gods' giving us vision. This he does in the following lines:

> but let us say that this (*hautē*) is the cause (*aitía*) of this (*toutou*) to these ends (*epi tauta*): god devised sight and gave it to us so that we might, by observing the orbits of intelligence in the heavens, use them for the revolutions of our own thought, which are akin to those orbits, though ours are disturbed and they are undisturbed, and that we might set aright the wandering revolutions in us by imitating the altogether unwandering revolutions of god, once we have fully learnt and come to participate in the correctness of calculations according to nature. (*Tim*. 47b6–c4)[21]

Plato's Greek here is, to put it mildly, confusing, and the translation, particularly of the first two lines, requires some difficult interpretative choices.[22]

[21] ἀλλὰ τούτου λεγέσθω παρ' ἡμῶν αὖτη ἐπὶ ταῦτα αἰτία, θεὸν ἡμῖν ἀνευρεῖν δωρήσασθαί τε ὄψιν, ἵνα τὰς περιφορὰς τὰς τῆς παρ' ἡμῖν διανοήσεως, συγγενεῖς ἐκείναις οὔσας, ἀταράκτοις τεταραγμένας, ἐκμαθόντες δὲ καὶ λογισμῶν κατὰ φύσιν ὀρθότητος μετασχόντες, μιμούμενοι τὰς τοῦ θεοῦ πάντως ἀπλανεῖς οὔσας, τὰς ἐν ἡμῖν πεπλανημένας καταστησαίμεθα.

[22] Compare the following translations of 47b5–7. (1) Rivaud (Budé) seems to take θεὸν ἡμῖν ἀνευρεῖν δωρήσασθαί τε ὄψιν as the *explanandum* and perhaps the forward reference of τούτου: 'Pour nous, nous dirons que la cause en vertu de laquelle le dieu a inventé la vision et nous en a fait présent est la suivante et toujours la même. Ayant contemplé, etc.'; so also Lee (Penguin): 'let us rather say that the cause and purpose of god's invention and gift to us of sight was that we should see the revolutions of intelligence . . .' (2) Bury (Loeb), meanwhile, takes the reference of τούτου to be the

The main question which divides translators is, what is Timaeus saying is the cause of what? I suggest we read the first lines of the passage in response to 46e7–47a1. First of all, as before, the *explanandum* is that god has given us eyes. Timaeus seems to confirm this here by saying 'god devised sight and gave sight to us' (47b6);[23] second, the *aitía* is the good because of which the gods gave them to us. This good is referred to here first by 'the cause to these ends' (*epi tauta aitía*),[24] where 'these ends' is spelt out in the entire purpose clause that follows at 47b6, 'so that (*hina*) we might, by observing, etc.' Now this purpose clause describes in somewhat different terms from before what good vision (cf. *katidontes*, 47b7) does for us. Before, we were told that through vision we could learn about number and philosophy; now we are told that by seeing the heavenly revolutions and learning about the correctness of calculations we may regulate our psychic revolutions. However, another important difference between the two descriptions is that only the second describes the good as the intention or purpose of god's giving us sight. The first time we were told that this is the good vision does; now we are told that vision has been given us because god intended it to perform this good. When Timaeus uses the good that vision does as the *aitía* of our having it, it is importantly the good described as the object of god's intention.

As far as the example of vision goes, Timaeus' position on how to talk about the *aitía* seems, then, to be this. The *aitía* of why we have been given sight is to be found by finding the chief good that it produces. For this good will tell us why the gods gave it to us. When giving the good as the *aitía* of why we have been given sight, however, we need to refer to it as the object of god's intentions. The primary sort of *aitía* is a purposeful or teleological cause, but it is so in a way that necessarily involves god's intentions. If you want to state the *aitía* of why we have eyes, don't just say that they help us

greatest good (referring back to the last sing. neuter, μέγιστον ἀγαθόν 47b3) and everything after αἰτία to be the cause: 'But the cause and purpose of that best good, as we must maintain, is this, – that God devised and bestowed upon us vision to the end that we might behold, etc.' So, perhaps, also Zeyl: 'Let us rather declare that the cause and purpose of this supreme good is this: the god invented sight and gave it to us so that we might observe, etc.' (3) Cornford agrees with Bury on the reference of τούτου (more precisely, 'philosophy' as the greatest good, cf. Cornford (1937) 158, n. 2), but he takes αὕτη to refer to ὄψις: 'For our part, rather let us speak of eyesight as the cause of this benefit, for these ends: the god invented and gave us vision in order that we might observe, etc.', perhaps influenced by the reference to ὄψις as αἰτία at 47a2.

[23] Alternatively, if we take τούτου with Bury and Zeyl (cf. n. 22 above) to refer to the greatest good, then what 47b5ff. would be adding to the previous lines is (apart from greater detail) that this greatest good was also god's intention in giving us vision, and that is the real cause of how vision came to be able to bestow these benefits on us.

[24] The expression reads almost as 'the cause for the sake of this', cf. ἐπὶ ταὐτὰ τῶν αὐτῶν ἕνεκα, 47c5. Many translators thus render it by 'the cause and purpose' (see n. 22 above). The passage reads as a stage in the development of the Aristotelian language of ἡ ἕνεκά του αἰτία.

do philosophy and that is good; say also that god intended that they should help us do philosophy!

Here is some more support for my interpretation of how Timaeus talks about *aitíai* at 46e7ff. First of all, it goes well with Timaeus' distinction between intelligent and unintelligent causes that I noted above. Timaeus insisted that the primary *aitía* had *nous* and that it worked with *nous*. If we understand that the good served by the eyes works as an *aitía* in so far as god intended that good, then we can see how the *aitía* has intelligence, namely god's intelligence. Secondly, my proposal fits the way, at the beginning of his account, Timaeus talked about the most fundamental cause (*aitía*, 29d7), or principle (*arkhē*, 29e4), of the creation of the universe. He said that the cause was god's wanting to make everything as good as possible, and in this way as similar to himself as possible. Timaeus then gave two examples of this: god made the world ordered rather than disordered because he thought that was better (30a2–6) and he gave the world an intellect, and hence a soul, because he thought that that too was better (30b1–3). So Timaeus answers the question, 'What is the *aitía* of the creation of the cosmos, and its order, and its soul?', not by just saying, 'this or that good', but by saying 'god's thinking and wanting that it should be good in such-and-such a way'. Saying that the *aitía* of our having vision is 'god's intention that we should enjoy the benefits of philosophy' fits this pattern. Finally, in the lead-up to the account of sight (44c4-d1), Timaeus explicates the term 'cause' with 'provision' or 'forethought' (*pronoia*). He says that we must now go on to tell what 'the causes and forethoughts (*aitías kai pronoias*) of the gods' were in producing the various parts of the body and the soul.[25] If we say that the *aitía* is god's purpose in giving us eyes, then the *aitía* is exactly that, a divine forethought. For Timaeus the notion of an intelligent *aitía* reflects the fact, as he sees it, that the world is the product of divine agency.

It is tempting to assimilate Timaeus' intelligent *aitíai* to Aristotle's final causes. This assimilation is justified in some respects, but not in others. It is justified, firstly, in that the statements of both kinds of *aitía* state the purpose or end that a given feature serves; secondly, in that they both take the purpose to be something good; and thirdly, in that both kinds of *aitía* are prior in the order of explanation or causation to any contributory causes (cf. 46d8–e2). These are important similarities that allow us to see the *Timaeus* as preparatory for Aristotelian teleology. However, this section has also pointed to an important difference relating to the role of the demiurge. For Timaeus final causes cannot be detached from god's intentions. They operate as *aitíai*

[25] Since both αἰτίας and προνοίας seem to be θεῶν, it is tempting to take καί as epexegetic.

via god's intelligence. Timaeus' teleology is not independent of god's mind or intellect.[26] Final causes presuppose the agency of an intellect. By contrast, in Aristotle's natural philosophy the good often operates as a final cause without being the object of any intentions or thoughts. This difference relates to the more general point, made in the last chapter, that the demiurge cannot be eliminated from Timaeus' teleology. The cosmos and its denizens are good because god made them so, and, as we saw (pp. 89–91), if god were to remove himself from the cosmos, rationality, goodness, and beauty might cease to qualify it. God's intelligence is necessary for understanding how created things come to serve good ends and we would therefore expect our primary *aitíai* to make reference to it. Having made this distinction, let us, however, end this chapter by pointing to one further similarity between the teleologies of Timaeus and Aristotle.

DESCRIPTIVE DEPENDENCY

We have seen that the purpose of sight is the following. We should observe the revolutions of day and night, the month and the year in order to determine their number and time. By observing the ordered revolutions of the planets, the motions in our own souls become similarly ordered. This is possible because there is a kinship between the motions in our souls and the motions of the planets.[27] Our souls were made from the same rational material as the world soul (41d3–6). But our souls were thrown into irrational turmoil when they were embodied. For the soul was exposed to all sorts of irrational motions through the body (43a2–44b2). If, however, we can make our souls orderly and rational again, we shall be released from our bodies and return to our original happy state (42a2–b4). This is the *aitía* of the gods' giving us eyes.

I want to argue now that this *aitía* determines the description of the *sunaítia* of vision. Timaeus explains the mechanisms of vision as follows: our light-bringing eyes (*phōsphora ommata*) were composed of the same sort of fire as daylight. This is a special sort of fire that does not burn but spreads 'a gentle (*hēmeron*) light proper to each day (*oikeion hekastēs hēmeras*)' (45b4–6: clearly a pun).[28] The pure fire inside us is 'a brother'

[26] Saying this should be quite compatible with the argument of chapter 4 that the ordering efforts of the demiurge could be understood in terms of the general attributes of his art rather than in terms of the *particular* desires and intentions of an *individual* craftsman. The point here was not that the demiurge did not have an intellect or desires but that that intellect and those desires were fully determined by his craft.

[27] 47b7: συγγενεῖς ἐκείναις οὔσας.

[28] And perhaps also an etymology, cf. *Crat.* 418d4–6.

(*adelphon*) of the daylight of each day. The fabric of the eyes is fine so that only this pure fire will be let through. Whenever daylight (*methēmerinon phōs*: the punning continues) surrounds the stream of pure fire coming from the eye, like falls upon like (*homoion pros homoion*) and the two bodies of light coalesce. They become one body reaching out in a straight line from the eyes. Because the entire ray of light is similar (made of the same sort of fire) it becomes 'sympathetic', capable of being affected in a similar way. So whenever the ray hits upon an object and is affected by it, the affection spreads along the ray into the body all the way to the rational soul in the head.[29] It is this affection which we call vision. The kinship between the outer and inner light is further emphasized when Timaeus explains why vision does not happen when the light disappears at night. The pure fire coming from the eye then meets with darkness outside and is thereby cut off from its related (*suggenous*) fire. Meeting what is unlike (*anomoion*), the fire from within is extinguished. It is no longer *sumphues*, congenital with, the adjacent air. So vision can no longer take place.

The attraction of the internal light of the eyes to the outside light is an instance of the principle of like-to-like which reflects the original state of the world before the creation of cosmos. The receptacle moved like a winnowing basket by separating unlike elements from unlike and joining like with like. The like-to-like principle as such is associated with the motion of the receptacle rather than with the intelligent model (52d–53c). The attraction of the light inside the eye to daylight and its repulsion by the foreign darkness reflects the natural tendency of the elements to join each other according to likeness. Left to itself, fire will thus by necessity move towards fire given its nature. However, as in many other cases,[30] in the

[29] τούτων τὰς κινήσεις διαδιδὸν εἰς ἅπαν τὸ σῶμα μέχρι τῆς ψυχῆς αἴσθησιν παρέσχετο ταύτην ἣ δὴ ὁρᾶν φαμεν (45d1–3). The text raises the question why the motions apparently have to enter the *entire* body before they are registered by the soul. If the motions enter the eye and the soul is primarily located in the circular motions in the head, then why not just say that the motions have to be communicated from the eyes to the inside of the head? (I am grateful to David Rosenblum for raising this question.) There are at least two possible replies. One is that Timaeus is anticipating the point made at 70b–c that perceptions are communicated throughout the body in such a way that intellect can receive messages from the entire body, all of which in turn can receive commands from the intellect. Another is to point out that ἅπαν τὸ σῶμα in the context is used in contrast with ἓν σῶμα at 45c4. In other words, Timaeus uses ἅπαν τὸ σῶμα as a way of distinguishing the whole body from the extended part of the body that the visual ray becomes when it merges with the sunlight.

[30] Cf. for example, the account of nutrition at *Tim.* 82a–d. The principle of like-to-like causes depletion in our bodies as their constitutive elements seek to be united with kindred elements outside the body. However, the principle has also been made to work as a principle of nutrition, which compensates for the results of the depletion. For when the food is broken down in our stomachs the elements in the food join their kindred parts in the body, thus making up for the matter that the body continuously loses to its environment.

case of vision the processes of necessity have been made to co-operate with reason for a purpose.

We see this cooperation reflected in the way in which the processes of vision are described with reference to its end. Timaeus emphasizes the likeness between the eyes and *daylight*, i.e. the medium of vision, rather than the likeness between the eyes and the *objects* of vision, as, for example, Empedocles seems to have done.[31] The reason for this emphasis lies in the *aitía* of vision. The sun and our eyes have the same *aitía*. Here is the reason why God made the sun:

> And so in order that there might be a conspicuous measure for the relative speed and slowness with which they [the planets] moved in their eight revolutions, the god kindled a light in the second orbit from the Earth – what we now call the Sun – in order that he might fill the whole heaven with his shining and that all living things for whom it was appropriate might possess number, learning it from the revolution of the Same and uniform. Thus and for these reasons [*houtōs kai dia tauta*] day and night came into being, the period of the single and most intelligent revolution. (39b2–c2; transl. Cornford)

The demiurge wanted to allow the appropriate animals to grasp number and to this end he lights a light, the Sun, to illuminate the heavens. The demiurge's goal in creating the Sun coincides with his goal in creating the eyes: vision too, as we saw, was fashioned so as to give its possessors an idea of number. This was the good the gods had in mind when they gave us sight (*Tim*. 47a4–b3).

I suggest that it is to underline the fact that the creations of the sun and the eyes have the same *aitía* that Timaeus makes the eyes in the image of the sun. The sun and the seeing part of the eyes are made of the same gentle light. Like the eye in the sky, our eyes withdraw their light at night and release it by day. Our eyes go through the same revolution of light and darkness as the sun. Our eyes and the sun work together. The purpose of the eyes is to observe the revolutions of the planets, in the first instance those of the sun, whilst the purpose of the sun is to make those revolutions observed. That is why Timaeus stresses the kinship between the eyes and the sunlight, as well as the difference between the visual ray and darkness.

This interpretation allows us to solve a textual puzzle at 45b4–6. The gods created the eyes out of 'a gentle light (*hēmeron*) proper to *each* day (*oikeion hekastēs hēmeras*)' (45b4–6). Cornford explains the sentence as follows: 'Each day as it follows night has a body of its own (*oikeion*), consisting of sunlight diffused in the air, which "withdraws" at nightfall following the sinking sun . . . *oikeion* contains the suggestion that a 'gentle' (*hēmeron*) light is

[31] Plato, *Meno* 76d4–5.

naturally appropriate to day.'[32] Cornford criticizes Taylor for ignoring the word 'each', translating 'a gentle light proper to day'. But Cornford himself fails to explain the word. Why should the fire in the eyes be appropriate to *each* day and not simply to daylight in general?

The *aitía* of our sight again provides the answer. The *aitía* was to observe the planetary revolutions starting with the most intelligible single revolution of day and night (39c1–2; cf. 47a5). That this revolution is single and most intelligible I take to mean that it is a unit by which other revolutions can be measured and understood. It is by the revolution of *one* day and night that we measure the other revolutions. In order to realize the purpose of vision we must start by counting *each* day. The first step is therefore to observe the revolution of one day and night. This is how we gain our first concept of number. The point is made again in *Laws* VII 818c and *Epinomis* 978d where the difference between day and night is sent by the gods to enable us to recognize the difference between one and two and thus to give us the ability to count. The Athenian says at *Epinomis* 978d: 'Now as Ouranos never ceases rolling these spectacles around, day after day, night after night, neither does he ever cease teaching men the knowledge of one and two until even the dullest student has sufficiently learnt the lesson of counting.'[33] In the *Timaeus*, the revolution of day and night has been made clear to us by the appearance and disappearance of the sun's light. Similarly, the eye's light disappears after each day and reappears the next day. The eyes' light and power of vision follow the revolution of day and night. The addition of 'each' reminds us that this revolution is a unit that should be counted and used for measuring other revolutions. Timaeus has thus described the *sunaítia* of vision with reference to its purpose. He describes the eye by those features that help us realize the god's reason for giving us sight.

The connection between vision and the sun is reinforced by several literary references. Commentators commonly take *Timaeus* 45b2ff. as referring to the opening of Aristophanes' *Thesmophoriazusai* 16–17, where the character of Euripides explains the creation of the eyes and ears as follows 'When in the beginning the Sky became a separate entity, and took part in begetting living, moving beings within itself, it first devised the eye "in imitation of the solar disc", whereby they should see, and as a funnel for hearing made the perforations of the ears' (16–18). We have seen why Timaeus should want to hint at *Thesmophoriazusai*. He stresses the kinship between the sun and eyes because the two work together and realize their purpose together.

[32] Cornford (1937) 152, n. 2.

[33] Since the *Epinomis* simply seems to be more explicit on the point made in the *Laws* we can leave worries about its authenticity on one side.

The reference to the *Thesmophoriazusai* also links the *Timaeus* passage to two similar passages at *Republic* 411a and 508b where the reference also occurs. The connection with the image of the sun at *Republic* 508a–b seems particularly important. For just as the *Timaeus* uses the reference to stress the relationship between the eyes and the sun, so the eyes in the *Republic* passage are described as the most sun-like (b4: *hēlioeidestaton*, repeated at 509a1: *hēlioeidē*) of the sense-organs. The power of vision has been dispensed to the eyes from the sun as if it were an effluence from the sun. The relationship is in both passages underlined by pointing to the difference between seeing by night and by day. In both cases the difference is put down to the presence or absence of daylight (cf. *hēmerinon phōs*, *Rep.* 508c4–d2).[34]

The purposefulness of the eye is further indicated by Timaeus' use of the phrase *phōsphora ommata*. In Greek literature before Plato the epithet *phōsphoros* is used only twice in connection with the eyes. Both occurrences are in Euripides' *Cyclops*.[35] Their context suggests that Plato is making play with them: Odysseus is contemplating blinding Polyphemus by inserting fire into his light-bringing eyes. As Seaford notes, the epithet *phaesphorōi* at 462 is 'cruelly chosen, for the torch will introduce more light'.[36] With this reference in mind, we can understand why when Timaeus says that the gods fashioned a body of light and put it in the eyes he hastens to add that this fire was of the sort that does not burn. For otherwise the fire would have exactly the opposite effect: like the Cyclops we would have been blinded. The epithet is cruel in the *Cyclops* but by contrast appropriate in the *Timaeus* to the benevolent *pronoia* of the gods. In the *Timaeus* the image is inverted: non-burning fire is put into our eyes to give us sight, not to blind us.[37]

[34] No explicit teleology of vision is provided in the *Republic*. However, the thematic connection between the image of the Sun and the image of the Cave is suggestive of a teleology of sight. For just as the Cave tells us that we should gradually turn our intellects to the form of goodness, so, given the parallels between vision and the intellect and the Sun and the form of goodness, the underlying idea may be that we should turn our vision towards the Sun. Since the Sun is the representation of the form of goodness in the visible realm, the implication may be that our power of vision is best used studying the Sun (cf. *Rep.* 517b and 506e). If so, the parallel between the *Republic* and the *Timaeus* passages lies not just in pointing to the kinship between the eyes and the Sun. It also lies in suggesting that the proper use of sight is to observe the Sun as a visible representation of goodness.

[35] Cf. *phaesphorōi opsei* at 462 and *phōsphorous koras* at 611.

[36] Seaford (1984) 190.

[37] The significance of the reference to the *Cyclops* may not end there. For the impious Cyclops, to quote Kovacs (1994) 56, 'Zeus' functions in the ordering of the world are replaced by necessity.' Polyphemus says that 'the earth brings forth grass by necessity whether it wants it or not and I sacrifice to no one but myself and not to the gods' (333–4). In other words, the Cyclops represents the principle of necessity against the principle of divine *pronoia*. But for Timaeus the stated aim of vision is exactly to help the soul control the irrational effects of necessity and to identify with the forethought of God. The inversion of the image of the *Cyclops* therefore goes together with an assertion of divine *pronoia* against the Cyclops' position.

CONCLUSION

The account of vision serves as an example of how God has made necessary mechanisms work for our good. It shows the necessary process of fire's attraction to fire in the service of the aim of conveying understanding to man of the planetary motions. The kinship between the eyes and the sun continuously reminds us of the way in which we ought to use vision, a message that is reinforced by literary references to Aristophanes and Euripides. The description of the necessary processes of vision makes sense in the context of its purpose. In this way, the account of vision illustrates a point made earlier about the difference between mere necessary conditions and necessary conditions that are also contributory causes. We saw no reason why Socrates' bones and flesh so described should contribute to realizing Socrates' idea of what was good, that is, staying in prison rather than running away. However, we see why the mechanisms of vision contribute to seeing, and in particular to seeing the planetary motions, because these very mechanisms so described work in conjunction with the realization of the purpose of the eyes. In other words, it seems that in the *Timaeus* once necessary conditions are brought in under a teleological explanation they are described in a way that links them to a specific sort of outcome which is considered good. Once persuaded by reason to work for the good, the necessary processes themselves appear informed by that good. They appear appropriate and right for the task set them by reason.

I noted earlier that Plato's and Aristotle's teleology shared the insight that properties that are explained teleologically may necessarily give rise to properties that cannot themselves be explained teleologically. We can now add another feature that the two theories have in common: contributory causes are described with reference to their ends. Aristotle draws a distinction between features that are necessary given the nature of matter, so-called 'simple necessity', and features that are necessary if a certain end is to come about, 'hypothetical necessity' (*Physics* II.9). So iron is hard by simple necessity, given the material composition of iron, whereas an axe is made of iron by hypothetical necessity, for it has to be made of iron (or a hard material like it) if it is going to be used for chopping wood. We can compare Aristotle's hypothetically necessary with Timaeus' contributory causes in that both are picked out by their role in bringing about a certain end. Indeed, Aristotle on occasion uses Timaeus' word *sunaítion* to describe the way in which the hypothetically necessary serves an end.[38] Within his

[38] Cf. *De An.* II.4 416a14, *Metaph.* V.5 1015a21.

biology Aristotle will often describe the hypothetical necessary in a way that shows its contribution to an end. So for Aristotle the sense organ of sight is made of transparent matter, where the transparent is what has the ability to be changed by colour as such, and to be so changed is the function of vision. Aristotle insists on describing the eyes as made of water *qua* transparent because it is this feature of the eyes' composition that is relevant to their function in seeing.[39] Similarly, for Timaeus the eyes are described as made of gentle fire akin to the sun's in so far as it is this feature of the eyes that will enable us to fulfil the *telos* of vision. This descriptive dependency of the mechanisms of sight on the purpose of sight means, for both Plato and Aristotle, that we can only really understand these mechanisms once we have understood the purpose. Teleology is not an add-on feature to the way we describe the workings of contributory causes; it affects the basic ways in which these causes are selected and presented within our cosmology.

[39] Cf. Johansen (1998a) 35–44 for a defence of this point.

CHAPTER 6

Space and motion

The last chapter argued that necessity arose out of the nature of the simple bodies in conjunction with the receptacle. The receptacle played an important role in accounting for the necessary motions, particularly in explaining why bodies with like natures move towards each other. However, it would be a mistake to think of necessity as simply emerging out of the receptacle as such. For, I argued, the pre-cosmic receptacle does not on its own support the notion of necessity. This chapter considers Timaeus' account of the receptacle in more detail. In the process, it should become clearer how Timaeus distinguishes the states of the receptacle after and before the creation of the cosmos and thus how he sees the difference between a world that is governed by teleology and one that is not.

At 48e Timaeus says that you need three basic principles to explain the cosmos. Two of these, the notions of being and becoming, we are already familiar with from the beginning of this dialogue and from other Platonic dialogues. But now Timaeus adds a third principle, that of the receptacle of coming-into-being. What exactly Timaeus means by the receptacle has been debated since antiquity. Does he mean the matter out of which physical things are composed, as Aristotle suggested? Or does he mean the space in which physical objects are located? Timaeus himself calls the receptacle 'space' (*chōra*), but never 'matter' (*hulē*). However, this fact hardly settles the question. For Timaeus might have ascribed to the receptacle functions that Aristotle ascribes to matter without calling the receptacle 'matter'.[1]

It is not my aim in this chapter to try to resolve this ancient debate. This is partly because the evidence is very complicated,[2] and partly because it

[1] ὕλη originally meant 'woodland' or 'timber'. It is not clear whether the term was used to mean 'matter' in contrast to 'form' before Aristotle; cf. Solmsen (1960) 123: 'It is very unlikely that the term *hyle* had ever before [sc. Aristotle] been employed for a similar purpose.' The exception is perhaps *Philebus* 54c2, where Hackforth (1945) 110, n. 1 notes a 'generalizing use'. Whether or not the *Philebus* post-dates the *Timaeus*, it seems that the term is not so well established as to make its absence in the *Timaeus* telling. (I am grateful to the anonymous reader on this point.)

[2] For a judicious survey see Miller (2003).

is not clear to me that there might not be an interpretation on which the two descriptions of the receptacle are compatible. Instead, I propose to try to clarify what Timaeus means just in so far as he says that the receptacle is 'space', in other words, what role the receptacle plays within Timaeus' cosmology in so far as it is understood as 'space'. There is no implication here that by showing the role that this claim plays I shall also have shown that the receptacle could not or should not also in some sense be taken to be matter. Indeed, in the third and final part of this chapter I shall make some comments on why Aristotle, to some extent, was justified in proposing the matter interpretation of the receptacle. In the first part, however, I shall be considering the introduction of the receptacle. I shall be arguing that the receptacle of coming-into-being is understood as space because Timaeus has in mind a certain notion of coming into being. In the second part I try to give a more detailed description of Timaeus' concept of space and consider some objections to the interpretation I will be suggesting.

CHŌRA AND COMING-INTO-BEING

The claim that the receptacle is space first explicitly occurs in the *Timaeus* as one of three apparently connected claims. Firstly, what comes into being comes into being in some place (*topos*) (52a6). Secondly, the *chōra* provides the seat (*hedra*) for everything that comes into being (52b1). Thirdly, it is by looking at the kind (*genos*) of the *chōra* that we say 'that it is necessary for everything there is to be somewhere in some place and occupying some space and that what is neither on earth nor somewhere in the heavens is nothing' (52b3–5). Timaeus accepts the third claim only with qualification. It is not true for Timaeus that *everything* there is must be somewhere. For it is not the case that the forms are because they are somewhere in the receptacle. On the contrary, the forms do not even enter the receptacle (52a2–3). So it is false to say of *everything* that is that it is by being somewhere in some place and occupying some space. The role that the receptacle plays in providing a place or seat is restricted to what comes into being.[3] As Timaeus himself said in the second claim, the *chōra* provides the seat for *everything that comes into being* (52b1).

[3] Algra (1994) 107 takes the significance of the reference to our dream-state to be that Plato thinks that our common conceptions of place cannot be clarified. But the passage attacks not the vagueness of our notion of place as such, but our ignorance of the proper distinction between being and becoming. The connection between dreaming and failing to realize the proper role of the forms is thus comparable to that made in *Rep.*v 476c.

What does Timaeus mean by saying that the *chōra* provides a seat for everything that comes into being? The answer, I want to argue, lies in a certain notion of coming-into-being. In order to understand this notion it helps to go back to when Timaeus first introduced the receptacle at 49a1. The receptacle is brought in as a necessary addition to the two kinds he first described at the beginning of his speech. He now repeats his original distinction between the first kind, being, and the second kind, what has coming-into-being. He then introduces the third kind as the receptacle of *all coming-into-being* (49a6). In other words, the thought is that the receptacle is required in order to explain coming-into-being.

But what does Timaeus mean by coming-into-being here? The answer is suggested by the next lines. Timaeus says that the subject of the receptacle is particularly difficult because it is necessary, if we are to become any clearer about it, first to raise a puzzle (*proaporēthēnai*) about fire, earth, water, and air (49a7–b2). The puzzle concerns the fact that these four bodies seem to change into each other. What we have called water we see, as we think, become (*gignomenon*) stones and earth when it is condensed; this same thing we see become air when it dissolves and is divided and so on. In short we see, as we think, all the four bodies change into each other in a cyclical manner by processes of division and composition. Timaeus said that it is *necessary* (*anagkaion*, 49b2) to raise the puzzle about bodies in order to understand the receptacle. So Timaeus' suggestion is that the role of the receptacle should be seen in relation to the sort of coming-into-being that is involved when bodies change into each other. I want to refer to this notion of coming-into-being as dynamic, because it involves bodies continuously chang*ing* into each other.

It is important to emphasize that Timaeus has a dynamic notion of coming-into-being in mind when he introduces the receptacle. For there is another notion of coming-into-being that is often taken to be at least as important to our understanding of the receptacle. This is the notion of coming-into-being which one might call constructive. By this I have in mind the way in which bodies were first made up or composed. In other words, it might be thought that the prime function of the receptacle is to help explain how bodies were constructed in the first place. For example, when Timaeus later at 54d2 turns to the subject of geometrical composition of bodies he talks of their coming-into-being in the perfect (cf. *gegonen* at 54d4, e3, 55b3, c3) and distinguishes this from what has been said up till then about the 'coming-into-being into each other' (*peri tēs eis allēla geneseōs*, 54d3). This constructive notion of coming-into-being is different from the

dynamic since it does not imply that what has come-into-being is subject to continuous coming-into-being and destruction.

Now I do not want to deny that the receptacle may somehow play a role in the construction of bodies, though the receptacle is never referred to in the passage where Timaeus describes the geometrical composition of bodies. However, it is not the constructive aspect of coming-into-being that Timaeus focuses on when he introduces the receptacle. It is what I have called the dynamic aspect. This is an aspect that derives from Timaeus' original description of the second kind. For when Timaeus originally made the distinction between being and coming-into-being (27d5–c3) he described the second kind not just as having come into being (perfect tense), but also as what is always coming into being and being destroyed (present tense). In other words, he made it clear that he takes bodies as essentially subject to a continuous process of coming-into-being and destruction (present tense: *gignomenon*, 28a3,4; *gignomena*, 28c1).[4] It is this feature of bodies as continuously coming-into-being and being destroyed that Timaeus refers to when he describes the bodies as always changing into each other. In other words, when Timaeus introduces the receptacle he does so in relation to a puzzle concerning the way in which bodies are always coming into and going out of being.

The puzzle presented by this sort of coming-into-being is this (49c7–50a4). Since each body is always changing into another sort of body how are we to say with any certainty, as Timaeus puts it, 'which of them, as being whatever, is this' (*poion autōn hōs on hotioun touto*, 49d1–2)? The receptacle is introduced in response to this puzzle. Faced with the appearance of continuous transformation of bodies there is only one 'thing' which we can say with confidence is a 'this', namely, that 'in which' (*en hōi*, 49e7) the bodies appear (*phantazetai*, 49e8) to come into being and from which they are destroyed. For this 'thing' alone remains during the inter-transformations (50a1). The changing appearances of the simple bodies may, in contrast, only be referred to as 'such-like' (*toiouton*), not 'this'.[5]

The receptacle is described as that 'in which' the phenomenal bodies come into being. Take, for example, the appearance of fire, or a fiery appearance, understood generally not as a particular appearance but as any appearance of fire. According to Timaeus, we are always observing fire,

[4] Cf. Frede (1988) for an interpretation of this claim.

[5] I am not persuaded by the Cherniss re-reading of this passage, cf. Cherniss (1954). The main objection is that Timaeus distinguishes three kinds where Cherniss' reading would imply four. For further objections, cf. M. L. Gill (1987). For a defence, see Silverman (1992).

some fire, that is, in different places (*allēi*)[6] and at different times (*allote*) (49d4–5). To use an analogy, our experience of fire seems to be like that of observing fireflies on a dark night, flashes of light appearing in different parts of the darkness at different times (*allēi allote*). For an appearance of light to come into being means for it come into being *somewhere* in the darkness. So generally, Timaeus thinks that for an appearance to come to be means for it to come into being somewhere in the receptacle, for it to cease being means for it to be destroyed from somewhere in the receptacle.

The relationship between appearances and the receptacle is thus figured in spatial terms: the appearances occur in the receptacle (*en hōi eggignomena*) and are destroyed from there (*ekeithen*).[7] For Timaeus, coming-into-being always has a prepositional complement. It is coming-into-being *in* (cf. *hosa te alla schēmata enegigneto*, 50b2–3; *to d'en hōi gignetai*, 50d1; *en heterōi prosēkei tini gignesthai*, 52c4), whilst destruction is destruction *from* the receptacle. The spatial description of what the receptacle does continues at 50b9–c5: the receptacle receives everything but does not take on the shape of any of the things that *enter* it (*tōn eisiontōn*); it changes its appearances because it is moved (*kinoumenon*) and transfigured by what *enters* (*tōn eisiontōn*) it, whilst the things that *enter and depart from* it (*ta eisionta kai exionta*) are likenesses of the eternal beings. Again at 52a2–b1 the forms are contrasted both with the images and the receptacle in that a form never receives anything *into* itself from anywhere else nor does it itself ever enter anywhere *into* another thing. The image, in contrast, is always in a state of having moved place (*pephorēmenon aei*), coming to be *in some place* (*gignomenon te in tini topōi*) and again being destroyed *from that place* (*ekeithen appollumenon*).

When the receptacle is named as the third kind of the *chōra* at 52a9, we have therefore been well prepared for thinking of the receptacle in spatial terms. For we have already come to see the coming-into-being and destruction of bodies in terms of their spatial movement in and out of the receptacle. That is why we are now ready to accept that the coming into being and destruction of the phenomenal bodies require *chōra*. For without place or space, there would be nothing for the bodies to enter into and depart from. And without bodies entering into and departing from something, there would be no coming-into-being and destruction. For this just is the way Timaeus has construed the continuous coming-into-being and destruction of bodies.

[6] Alternative translation: 'in a different manner'. However, the spatial meaning of *allēi* is the primary one and seems the appropriate complement to 'at a different time'.

[7] Cf. 49d4–5: ἀεὶ ὃ καθορῶμεν ἄλλοτε ἄλλῃ γιγνόμενον . . .

Let us pause and take stock to see what is distinctive about the reading that I have been developing so far. I am suggesting that Timaeus' main, but not necessarily only, reason for calling the receptacle 'space' is that he takes the coming-into-being and destruction of bodies to consist in a certain kind of movement in and out of space.[8] The steps whereby I arrived at this conclusion were the following: (a) the receptacle is required to explain coming-into-being; (b) by 'coming-into-being' Timaeus has in mind a dynamic notion whereby bodies are continuously coming into being and being destroyed; (c) in such coming-into-being one kind of body comes into being *in a place* by replacing another kind of body, which thereby is destroyed *from that place*; and (d) the receptacle of coming-into-being provides the space or place in which such coming-into-being occurs; (e) that is why the receptacle is required for coming-into-being and that is why it is referred to as 'space' or 'place', *chōra*.

The key claim here is that coming-into-being and destruction involve a certain notion of spatial movement according to Timaeus. Let me try to clarify the nature of this spatial movement by way of a distinction. We can distinguish two sorts of spatial movement. On the one hand, there is the motion of a body from place A to place B. This sort of motion is what we would normally call 'locomotion'. Since it is the same body that moves from A to B there is nothing here that begins or ceases to exist. So this sort of locomotion is clearly distinct from what we after Aristotle would call 'generation and corruption'. However, it also seems that Timaeus has presented us with another sort of spatial movement. As in the first kind of motion, a body first moves into place A and then leaves place A. However, the difference here is that when the body moves from A *it* does not move to B, rather it ceases to be. And when it moved into place A it did not move from some other place where it previously was. Rather it came into being

[8] The strongest evidence adduced for the constructive reading seems to be the gold analogy at 50a5–b5. Imagine a man who keeps moulding different shapes out of (*ek*) a piece of gold. If you were asked of one of the shapes what it is, what would you say? The safest reply by far, Timaeus says, is to answer that it is gold, since the gold does not change. Timaeus' use of the preposition 'out of' (*ek*) suggests to some that he sees the role of the receptacle as providing the matter out of which different bodies are composed. However, the point of this passage is to illustrate the way the shapes in the receptacle keep changing and not the way in which the shapes are composed out of the receptacle. For it is the point about the changeability of the shapes that gives Timaeus the conclusion that the receptacle is the only answer to the question of what the shapes are. This point can be made irrespective of whether the shapes are thought of as composed out of the gold or simply as occurring in the gold. Notice also that Timaeus immediately switches from saying that shapes are composed out of gold to saying that they occur in the gold (*enegigneto*, 50b4), which suggests that he is not specifically concerned to say that the receptacle enters into the composition of the simple bodies. For whilst bodies that occur in the receptacle may also be composed out it, they may equally well not be composed out of it but simply be located in it.

full stop. In other words, the second kind of motion seems to be a case of what we would call 'generation and corruption' since something new does come into being and is then destroyed every time something moves into a new place.

So far Timaeus seems to have been interested primarily in this second kind of motion into a place and out of a place. For he talks of bodies coming into being in a certain place and being destroyed from that place. That suggests that by 'coming-into-being' Timaeus is thinking of the coming into being of a body in a certain place in the sense that it has come to be in that place whereas previously it was not at all. On the firefly analogy, we would be thinking of a flash of light that briefly illuminates a part of the darkness and then disappears, in contrast to a single continuous light tracing a path through the darkness. The sense in which the coming-into-being and destruction of bodies involve spatial motion is then that bodies enter into and depart from certain places. It does not seem that Timaeus by coming-into-being has in mind the way that bodies may move around in or through space.

However, it becomes clear that this cannot be the full story when we move to the next passage, which I quote in full (52d2–53b5):

> Now that it has been reasoned out in outline let this account have been passed by my vote, that there are being and space and coming-into-being, also before the heavens came into being. (A) When the nurse of coming-into-being is wetted and made fiery and receives the shapes of both earth and air, and suffers as many other affections as are consequent on these, it appears in all manner of ways to look at and because it is full of powers that are neither similar nor in equilibrium it is in no part of itself in equilibrium but being weighted in every way unequally is shaken by those, and again being moved it shakes those in return. (B) And different things being moved in different directions are moved by being distinguished, just as the things that are shaken by baskets and tools for purifying grain, some of them which are dense and heavy arriving in one place, whilst others that are rare and light by being moved settle in another location. (C) At this time the four kinds are shaken in this way by the thing that received them, whilst it was being moved [or whilst it moved] like a tool for shaking, differentiating for the most part the most dissimilar things themselves away from themselves, whilst pushing most of all the most similar things together in the same place, and that is why these different things also have a different place, even before the universe came to be having been ordered out of them. (D) And before this all these things were irrational and disorderly, but when the attempt was made for the universe to be ordered, fire first and water and earth and air, whilst they had some traces of themselves, they were altogether disposed in the way you would expect everything to be whenever god is absent from something, so these were naturally when he first shaped them with forms and numbers.

This passage describes the movements of bodies from one place (*hedra* or *chōra*) to another. The receptacle shakes the different bodies in the direction of their proper places. The bodies seem no longer to be viewed as individual episodic appearances but as continuing appearances that travel through space to a certain place. In other words, we seem now to be approaching coming-into-being from the point of view of the first sort of locomotion (movement of a body from place A to place B) rather than from the point of view of the second sort of locomotion, the one that implied the generation and destruction of what moved. Has Timaeus slipped from one notion of coming into being to another without warning or is there a way in which these two points of view can be combined within a single story?

The passage starts in (A) by saying that the three principles, being, the *chōra*, and coming-into-being, apply even before the creation of the cosmos. Timaeus, then, in (B) and (C) describes the role of the receptacle in the distribution of the four kinds of body adding that the four kinds had their proper places even before the creation of the cosmos. It ends, however, in (D) by pointing to a difference between the pre-cosmos and the cosmos (53b1–2). Before god made the cosmos, there were merely traces of water, fire, earth, and air, and the manner in which they moved lacked proportion and order (*alogōs kai ametrōs*, 53a9).

What is missing from the account so far, then, is the idea that the motions of bodies are ordered. The viewpoint on the universe so far has been that of somebody who has no understanding that what he sees, the fire appearing here, the water appearing there, expresses a mathematical order. When Timaeus says that he has been describing the motions of bodies as they were both before and after the creation of the cosmos he means to say that he has been describing the motions of bodies in abstraction from their mathematical order. This *was* how the bodies actually moved before the creation of the cosmos (if there ever was such a time), and it *is* how they appear to us to move *now*, if we do not understand the mathematics that governs them. In other words, if you don't understand the mathematics you might as well be living in the pre-cosmos. Timaeus therefore prefaces his discussion of the motions of the four kinds in the cosmos by saying that his interlocutors will understand it because they have the necessary education, by which he means mathematical education (53b9–c3).

The reason why I mention this distinction between the cosmos and the pre-cosmos is that whilst Timaeus has so far described the coming-into-being of bodies from a point of view that applies to both the cosmos and the pre-cosmos, it is much clearer how the coming-into-being he is describing in the winnow basket passage works in the cosmos than in the pre-cosmos.

So I propose briefly to look at the case of the cosmos and then return to the pre-cosmos. What I hope thereby to show is how the two notions of spatial movement, as locomotion traditionally understood and as coming-into-being in a place and being destroyed from a place, are related. This in turn should clarify what role the *chōra* plays in these movements.

When God created the cosmos he arranged the simple bodies according to geometrical principles. As a consequence, the way the simple bodies change into each other is also regulated according to geometrical laws. So only three of the simple bodies will change into each other and not all four as seemed to be the case earlier (49b7–c7). There is now more to fire, earth, air, and water than their mere appearance in space. They are endowed with geometrical natures. This means that, whilst they are still subject to continuous coming-into-being, their coming-into-being is ordered. To use our previous image, the flashes of light are now regulated: we now understand the flashes in terms of the movements of fireflies, where previously we only spotted random flashes. The flashes of light are now expressions of the movements of things with proper natures, where previously they were *mere* appearances.

The rules of transformation for the regular solids reflect their geometrical composition (56c9–57b7). One body of water (icosahedron) may transform into five bodies of fire (tetrahedra) because one body of water contains twenty equilateral triangles and one body of fire four equilateral triangles. Alternatively, the same body of water may transform into one body of fire *and* two bodies of air (octahedra), where the bodies of air contain eight triangles each.[9] Only the bodies of earth will not transform into any of the other kinds of body since they are composed of a different triangle, the isosceles triangle. Different *compound* bodies made of isosceles triangles may of course still change into each other.

The important point for our purposes is that the transformation of bodies consists in the division (*diakrisis*) and composition (*sunkrisis*) of basic triangles. The transformations simply *are* the movements of triangles in space. The coming-into-being and corruption of fire, earth, water, and air boils down to different triangles congregating and separating in space. What it means for fire to come into being in this place is thus for (at least) four equilateral triangles to join each other in a particular arrangement in this place; what it means for fire to be destroyed is for these triangles to disperse from this place. Places, again, are where coming-into-being and destruction happen.

[9] Cf. Vlastos (1975) 71–3; Cornford (1937) 230–9.

Consider now 57b7–c6. This passage is a reprise of the winnowing-basket passage from the point of view of the finished cosmos. Timaeus has already, as we have seen, described the processes whereby the triangles form new bodies and dissolve. He now argues that all the simple bodies,

> change their 'places' (*chōrai*) in accordance with these affections. For while the bulk of each kind (of simple body) is separated in its own place (*idios topos*) because of the motions of the receptacle, the parts that are on each occasion becoming unlike themselves and like others are moved because of the shaking [sc. of the receptacle] to the place (*topos*) of those things it has become like.

This passage revisits the winnowing-basket passage from the point of view of a geometrical understanding of the four kinds of body. As the bodies bump into each other and their triangles regroup to form new bodies, the new bodies move to the places that are appropriate to their new nature, aided by the shaking of the receptacle. The inter-transformation of bodies will continue until such time as all the bodies have found their appropriate places. However, such a time, Timaeus argues, will never arise since the revolution of the universe keeps shaking the bodies together (58a1–c4).

So when we look at the finished cosmos we have a story that combines the notions of locomotion and transformation of bodies. As the bodies move towards their proper places (*chōrai*), they bump into other bodies, dissolve and reform into new bodies, which move towards *their* proper places. On the level of air, fire, earth, or water we can still make a distinction between a body of air moving from place A to place B and a body of air being dissolved at place A and reforming as another body at place B. However, on the level of triangles it hardly matters if we describe the motions of triangles as the motions of a body of air moving from one place to another or as the transformation of a body of air in one place into bodies of fire in another place. For all we have on this level are triangles moving from one place to another, temporarily hooking up with other triangles before they are again dissolved and move on. There is no coming-into-being and destruction of *triangles*, only movement from place to place.

This is how the inter-transformations happen in the cosmos. As for the pre-cosmos, I take the *general* picture to be the same: bodies change into each other as they move to their proper places. However, the account of how the inter-transformations happen in the pre-cosmos is necessarily different. For in the pre-cosmos there are no triangles which explain the inter-transformations. In the pre-cosmos the bodies, or rather their traces, move around in the receptacle and thereby *in some way* transform into each other. As we were first told when presented with the puzzle of

inter-transformation, we think we see water solidify into earth and stone, and we think we see this become air when melting and separating, heated-up air we observe, as we think, become fire, and so on (49b7–c7). Timaeus already at this stage used the spatial language of separation and congregation to describe the inter-transformations: 'separate' (*diakrinomai*), 'congregate' (*sugkrinomai*), 'depart' (*apion*) and 'come together' (*sunionta*). Timaeus is here describing the inter-transformations in the language which he will later use to describe the inter-transformations in the cosmos. However, the subjects of these verbs in the pre-cosmos are the phenomenal bodies that appear to us to be joining and separating, whereas in the cosmos, it is the triangles that separate and congregate, depart and come together. In other words, what distinguishes the pre-cosmos from the cosmos is not whether the inter-transformations are understood in spatial terms. They are in both cases understood spatially. Rather it is whether or not they are understood in terms of the spatial movements of *triangles*.

In the first part of this chapter, I have suggested that the *chōra* as space should be understood in the context of a certain story about the inter-transformation of bodies. More specifically, I have argued that the receptacle is presented as *chōra* primarily because of a spatial notion of coming-into-being. Coming-into-being is understood in terms of bodies, phenomenal or real, moving in and out of places. *Chōra* plays a double role in these transformations. Understood as a count noun, it is the particular places or spaces which bodies move to and from. Understood as a mass noun, *chōra* is generic place or space which bodies move to and from.

TIMAEUS' CONCEPT OF PLACE: IS PLACE ABSOLUTE OR RELATIVE TO BODIES?

It is now time to try to be more precise about what concept of space or place this interpretation leads to. I have related *chōra* to the places which bodies move in and out of when they change into each other. One question is whether this reading does justice to the fact that Timaeus calls his third kind *chōra*, 'space' rather than 'place'. This worry can be disposed of. When Timaeus first used the generic term *chōra* he did so whilst arguing that what came into being had to have a place (*topos*), space (*chōra*), and seat (*hedra*). A survey of Timaeus' use of the three terms in the dialogue as a whole shows that (see appendix for details) they are generally used interchangeably by Timaeus in three different ways. They can all refer either to (1) 'a place that something occupies or moves to or from, in or through'; (2) 'the *proper* place of something'; (3) 'a region or part of the human body or soul'. Besides the

general agreement between the terms there are, however, two significant differences.

The first difference is that Timaeus shows a marked preference for the term *hedra* in those contexts where he is arguing against the atomistic thesis that motion requires a vacuum. In Timaeus' cosmos every place (*hedra*) is occupied by a body. The term *hedra* is etymologically related to the verb meaning 'to seat' or 'settle' (*hizō*), a connection that our attention is drawn to at 53a2. It is tempting, therefore, to think that Timaeus has chosen this term in particular to refer to place as something in which a body settles.

The second difference is that, on those occasions when Timaeus refers to the existence of empty place or space, if only to deny it, he uses either the terms *kenon* and *kenotēs* (emptiness) or, on one occasion, *kenē chōra* (58a7).[10] One obvious reason for the choice of *chōra* is its connotation in Greek with empty space. Etymologists relate *chōra* to *chateō*, 'to lack'. *Chōra* is thus used in Greek to refer specifically to empty room or space.[11] So of Timaeus' three terms for place *chōra* is the more likely to be used for empty place.[12]

Plato's use of *chōra* is to some extent comparable to that of Zeno the Stoic and Epicurus. Zeno is reported to have defined *chōra* as partly occupied space, distinguishing it both from *kenon*, empty space, and *topos*, space that is fully occupied by a body.[13] Epicurus, meanwhile, takes *kenon*, *chōra*, and *topos* to be names of the same thing, 'intangible substance'. However, they are used to refer to this substance in different conditions, *kenon* when it is empty of all body, *topos* when occupied by a body, and *chōra* when a body roams (*chōrei*) through it.[14] It is noteworthy that they both use *topos* for place that is fully occupied by body, whereas *chōra* is only either partly occupied (Zeno) or temporarily occupied (Epicurus). This suggests that it is not just for Plato that the connection in thought between place and occupying body comes, as it were, less to the fore when one uses *chōra* to refer to place than when one uses *topos*.

[10] Cf. also *Rep.* IV 495c: κενὴν τὴν χώραν; Aeschines 3.146 μισθοφορῶν δ' ἐν τῷ ξενικῷ κεναῖς χώραις.

[11] Cf. Frisk (1970) 1126: 'Als "leerer, freier Raum" reihen sich χώρα, χῶρος an χήρα "Witwe" mit wahrsheinlichen Verwandten in χήτεϊ (χῆτος), χατέω.'

[12] κενός τόπος does not, to my knowledge, occur in Plato. However, Aristotle refers (*Phys.* 208b25–7) to those who claim that τὸ κενόν is 'place deprived of body' (τόπος ἐστερημένος σώματος), cf. 213a15–19, and that τὸ κενόν is therefore a kind of place (τόπον τινα, 213a16). However, perhaps the formulation 'place *deprived* of body' may still be taken to imply that it is the normal expectation that *topos*, unqualified, is to be filled with body.

[13] Sext. Emp. *Pyr.* 3.124.

[14] Sext. Emp. *Math.* 10.2, cf. Sedley (1982). The felicitous translation of *chōrei* is due to Sedley (1982) 188.

Now, if we ask why Plato chose to call the receptacle *chōra* rather than *topos* or *hedra* our observations might suggest the following: of the three terms, *chōra* is the one that best communicates the notion of space or place as an *independent* third kind that is separate from the second kind of the bodies that come into being. Since the conceptual connection with body in the cases of *topos* and *hedra* is closer than in the case *chōra*, these two terms are less useful for stating a separate third principle besides the bodily principle of coming-into-being. There is another possible parallel here with Aristotle. For on the two occasions when Aristotle in *Phys*. IV uses *chōra* together with *topos* (208b1–8, 209a8), he does so in the context of arguing that *topos* and *chora* are different from body. Now this point of course still allows Timaeus to show how *chōra* is a place or seat for bodies. However, this will be a substantive thesis, which Timaeus argues for through his argument against the vacuum. It is not a thesis that is implicit in his name for the third kind, *chōra*, as it might have seemed to be if he had called it *hedra* or *topos*.

We *can*, then, translate the mass noun *chōra* in line with tradition as 'space'. However, to bring out the connection with *chōra* as a count noun, which is used interchangeably with *topos* and *hedra* to refer to places or regions in the universe, 'place' would be the preferable translation.

Another worry is this. My interpretation has suggested that space has different parts or places. Fire comes into being at different places at different times, as Timaeus said. We talk of coming-into-being and passing away in relation to particular places, not just space in general. Bodies move to their proper places in the receptacle. Space seems therefore to allow for a certain degree of internal differentiation or structure, like a grid, perhaps. However, there is a problem with the idea that space has an internal structure. For how can space be differentiated into different places, if it is also, as we were told previously, shapeless and without any forms (*amorphon*, 51a7; 51a2–3)? Timaeus insists that the receptacle should be without any 'forms' (*eidē*) *at all* since it is going to receive all kinds in itself (50e4–5). This requirement that the receptacle should be able to receive *all* forms is later summed up in the adjective 'all-receiving' (*pandechēs*, 51a7).

There is another problem which I think is related to this. How are we to make sense of the dynamic notion of space presented by the winnowing-basket passage? Not only can we locate bodies in different parts of the receptacle, it seems that the receptacle itself is actively involved in moving the bodies to their respective places. The receptacle *shakes* the incoming bodies in different directions. This passage seems to have influenced some Neoplatonists, notably Simplicius, to ascribe to place a power to act on

bodies which stops them from dispersing and draws them together.[15] One can see how this view of place *might* be read into sections (C)–(D). For the receptacle is said to bring together like elements and differentiate unlike. However, the passage says nothing about bringing together bodies in the sense of preserving their unity. In ascribing this stronger notion of bringing together bodies, as Richard Sorajbi has pointed out, place on Simplicius' account seems to usurp the role of form: normally we think that it is form that arranges the parts and size of a body.[16] But even on a weaker notion of how the *chōra* arranges bodies than that of Simplicius, we are left with the problem of reconciling this role with the *chōra*'s stated lack of internal structure or characteristics.

The key to both of these problems, I think, lies in section (A): Timaeus starts by stressing the passive role of the receptacle in relation to the shapes it receives, using the passive participles 'being wetted, made fiery' and adding suffering (*paschousan*) other affections (*pathē*) following these affections. It is because *it is filled* (*empimplasthai*) with the various powers of these affections that the receptacle is not in equilibrium and when *it is weighted down* (*talantoumenēn*) unevenly it *is shaken by them* (*seiesthai*) and *being moved* (*kinoumenēn*) it shakes them in return. The emphasis on the passive role of the receptacle in relation to the affections leads on to the introduction of the motions that the affections set up in the receptacle. The passage thus goes out of its way to show that the motions of the receptacle do not originate in the receptacle itself but in the incoming affections. If the receptacle in turn moves the affections, then that is because it has temporarily taken on the motions of the incoming affections. The analogy would be with a calm sea which is moved by a boat and whose waves in turn affect the motion of the boat. But once the boat has left, the sea calms down again. At most we might say that the receptacle has a reactive power. But it is wrong to see this power as inherent in the receptacle as such. For the receptacle's ability to shake the bodies comes from its ability to take on any of the incoming affections' characteristics, including their motions. The receptacle really is *all*-receiving. It also takes on the motions of whatever enters it.

The tendency of the receptacle to move the four simple bodies in different regions is therefore, I would suggest, a reflection of the different powers of the four bodies. If you put two people on a seesaw it will naturally tip in the direction of the heavier body. Imagine now a seesaw in several

[15] Cf. Simplicius *in Phys*. 640.13 with Sorabji (1988) 205 for more references.
[16] Sorabji (1988) 210.

dimensions which is weighted down by unequal bodies in all directions. The image would correspond to the way in which the receptacle is affected by the incoming bodies. For Timaeus refers to the receptacle being shaken by being weighted down unequally by the incoming powers everywhere (*pantēi*, 52e3). The winnowing-basket comparison also referred to the heavy and the light being moved to different places by the receptacle.[17] However, the sense in which the receptacle actively moves them to different places need be no stronger than that the receptacle facilitates or reinforces their movement to the different places which they tend to move to in virtue of their different characters. The receptacle shakes the incoming bodies because of their uneven characters, not because the receptacle inherently moves bodies in this way. The picture Timaeus presents of space is therefore in contrast with a view of places as exerting an attraction on bodies.[18] For Timaeus the motion of the different bodies to different places seems to arise rather as a consequence of bodies' own motions.

I have argued that the *chōra* borrows its motions from the incoming bodies themselves. This conclusion may also suggest an answer to our earlier puzzle about whether the *chōra* had an internal structure like a grid. Just as one might see the motions of the receptacle as a result of the motions of the incoming bodies and not as an inherent feature of the receptacle itself, so one might see the differentiation of places as a result of the *chōra* being occupied by different bodies, and not as an inherent characteristic of the *chōra*. Timaeus consistently identifies places in relation to the kind of body that tends to occupy them in two different ways. In one way places may simply be identified as parts of the *chōra* that are temporally affected in a certain way. So when at 51b4–5 Timaeus refers to the fiery part of the receptacle or the wetted part, the implication might be that the part endures no longer than the affection in it. In another way, however, there are parts of the *chōra* that are *regularly* occupied by certain kinds of body. This seems to be the kind of place Timaeus has mind at 53a4–6 where he says that different kinds of body had different places because like bodies were pushed towards the same place. Another example is his discussion of weight (62c–63e). Timaeus rejects the notion that there is any absolute 'above' or 'below' in a spherical universe. Rather he sees these places as relative to the tendency of the elements to congregate like with like: where fire congregates with fire is 'above', where earth gathers is 'below'. In both

[17] I agree here with Cornford's view of the function of the winnowing basket as against Taylor (1928), who takes the basket to work like a sieve, cf. Cornford (1937) 200–3.

[18] A view sometimes ascribed to Aristotle on the basis of *Phys*. 208b8–11; see, however, Bodnar (1997) 99.

cases, a place in the *chōra* is defined relatively to some sort of body occupying it, either temporally or regularly. Plato's account might therefore suggest a notion of particular places as relative to the bodies that occupy them. Again the implication would be that the *chōra* has no determinate internal structure.

ARISTOTLE AND THE *CHŌRA*

To conclude this chapter, I want to make some comments on Aristotle's reading of the *chōra* in *Physics* IV. The upshot of these comments is twofold. First, I suggest that Aristotle's motivations for studying place are remarkably similar to Plato's reasons in the *Timaeus* for discussing the *chōra*, even if their views on place turn out to differ. Second, I argue that Aristotle's claim that Plato identified *chōra* with matter reflects quite accurately on the way in which Plato uses *chōra* in the *Timaeus*, though this is not sufficient reason for saying that *chōra* plays the full role of Aristotelian matter.

Aristotle introduces the subject of place by saying that it is necessary for a student of nature to have knowledge about place for two reasons (*Phys.* IV.1 208a27–b1). Firstly, 'everyone supposes that things that are, are somewhere, because what is not is nowhere'. Secondly, 'of change, the most general and basic kind is change in respect of place, which we call locomotion (*phora*)'. We have seen that both of these motivations enter into Timaeus' discussion of the *chōra*. The claim that what is must be somewhere in some place was rejected as a universal claim since the forms are not in a place, but accepted as a claim about things that are subject to coming-into-being. The second consideration turned out to be even more fundamental for Timaeus than it was for Aristotle, since for Timaeus all cosmic change consists in the movement of geometrical figures in space. (This, incidentally, is true not just of three-dimensional bodies but also of the circular motions of the soul, cf. chapter 7.) The two motivations for studying place as part of natural philosophy would coincide in Timaeus' account to the extent that coming-into-being in this account is locomotion.

There is therefore a strong similarity between Plato's reasons for introducing the *chōra* in the *Timaeus* and Aristotle's motivation for discussing place in the *Physics*. For Timaeus the account of the *chōra* is a necessary preliminary to our understanding of *coming-into-being*, much as the discussion of *topos* for Aristotle is prerequisite for his natural philosophy of change. For both philosophers the discussion of place is necessary in order to understand locomotion. However, for Timaeus this interest in locomotion has even wider implications than for Aristotle, since all the different sorts of

change in the cosmos are, as we have seen, dependent on locomotion to an extent that Aristotle cannot accept.

Aristotle comes closest to Timaeus' point of view in *Physics* VIII.7, when he argues that locomotion is the first and most basic form of change (*kinēsis*) in the cosmos. Aristotle argues that qualitative change relies on condensation (*puknōsis*) and rarefaction (*manōsis*), which he in turn derives from congregation (*sugkrisis*) and separation (*diakrisis*), 'processes in virtue of which', he adds, 'substances are said to become and perish; and in being combined and separated things must change in respect of place.' (260b11–14). It is tempting to take 'substances are said' (*legetai*) as a reference to the *Timaeus*, though Aristotle might equally be thinking of the atomists. In any event, the view that Aristotle is reporting entirely agrees with the *Timaeus*, particularly in its singling out of combination and separation as the key processes of substantial change. Though Aristotle here cites this view for dialectical support, it is clear that he himself stops short of it. For him the other sorts of change may *imply* locomotion as the primary form of change. However they are not, given the categorical distinctness of substance, quality, quantity and place, *reducible* to locomotion.

I turn now to my second point. Aristotle famously takes Plato in the *Timaeus* to be saying that space or place is matter (*hulē*). He offers two reasons why Plato made this identification. The first is that he thought of place as extension, i.e. as 'that which is surrounded and bounded by the form, as by a surface and a limit' (209b7–9). Extension, so understood, coincides with matter in that matter, as he puts it, is what is left when you take away the limit and the affections of the sphere (209b9–10). In other words, place and matter coincide in that both are to be understood as the product of abstracting the formal characteristics of a body. Presumably, what Aristotle has in mind are those passages where Timaeus describes the receptacle as without any of the forms (*eidē*) it is meant to receive, culminating in the description of it as 'shapeless (*amorphon*), all-receiving (*pandeches*), and participating (*metalambanon*) in a most perplexing way in the intelligible' (51a7–b1). Accordingly, he refers to Plato's identification of the *chōra* with 'the participatory' (*to metalēptikon*).[19] The implication, presumably, is that if we think of place as extension, then it, like matter, is something which is entirely determined by its formal attributes. In other words, Aristotle quite reasonably, I think, reconstructs Plato's motives as follows: if Plato both wants to call the receptacle 'space' (or 'place') *and* say

[19] If Aristotle borrows the term *metalēptikon* from *Timaeus* 51a7, then it is slightly misleading. For *metalambanon tou noētou* can hardly be a direct reference to the third kind's role as a receptacle since what it receives are not *intelligibles* (*noēta*) but only perceptible forms.

that it has no formal determinations of its own (since it is the *metalēptikon*), then that must be because he has in mind the view of space (or place) as mere extension. For the view of space as extension is the view of space you arrive at if you think of a magnitude without its limits. But if so, space coincides with matter.

Aristotle also adduces a reason why one might think, conversely, that matter is place. This reason is not explicitly ascribed to Plato. However, I take it with Hussey that he has Plato in mind,[20] since Plato elsewhere is the person with whom Aristotle associates the identification of place with matter. The reason is given in the following passage:

> Matter, too, might be thought to be place, if one considered the case of something at rest and not separated but continuous. For just as, if it changes qualitatively, there is something which now is white but once was black, and now is hard but once was soft (this is why we say that there is matter), so too place is thought to be because of this kind of phenomenon, except that that [matter's being thought to be] is because what was air is now water, while place [is thought to be] because where there was air, there now is water. But, as was said earlier, matter is neither separable from the object, nor does it surround it, while place has both properties. (211b29–212a2, transl. Hussey (1983))

Again Aristotle is reconstructing the sort of reasoning that would lead somebody to identify space with matter. Where in the first case Aristotle started from the notion of matter as what is determined by form, here he starts from the notion of matter as what underlies change. The structural parallel between matter and place is that where matter remains through qualitative or substantial change, place is what remains through spatial change. Just as what was once black or water is now white or air, so where there was once fire there is now air.

Aristotle's approach to the *chōra* here is essentially the one I have been advocating in this chapter. The receptacle is clearly in some sense what underlies both substantial, qualitative, and spatial changes. The receptacle is the 'this' (*touto*) which remains throughout the transformations of the phenomenal bodies. It becomes 'such-like' in ever-different ways like the lump of gold that is continuously given new shapes by the artisan. Yet, as we have seen, the receptacle also provides places to and from which the phenomenal bodies move. Aristotle articulates the apparent difficulty of maintaining both notions of a continuant in change when he says that whilst place is both separable from body and something that surrounds bodies, matter is neither.

[20] Hussey (1983) xxxii.

What drives Aristotle's reconstruction of Plato's position, however, seems to be his own assumption that substantial, qualitative, and spatial changes are distinct forms of change. One and the same receptacle cannot underlie all of these different sorts of change in the same way. If you understand the receptacle as the continuant in substantial change it will not be separable from bodies, since it will be part of what changes. However, if you take the receptacle to be what remains in spatial change it will be separable. For on Aristotle's concept of place as the inner limit of the surrounding body, the place that a body occupies can be separated from that body. It is not surprising, then, that Aristotle in the *De Generatione et Corruptione* says that 'Plato has not stated clearly whether his "omni-recipient" exists in separation from the elements' (329a14).

One possibility is of course that Aristotle has identified a genuine confusion on Plato's part and so much the worse for Plato as a philosopher.[21] Plato would have been taken in by the partial analogy between the role of place in locomotion and the role of matter in the qualitative and substantial change with the result that he identified place with matter. However, another possibility that I have tried to bring out in this chapter is that on Timaeus' position substantial and qualitative changes just are forms of locomotion in so far as they are constituted by the relocation in space of geometrical bodies, or in the case of the pre-cosmos, by their so-called traces. If you properly understand what is involved in the transformation of bodies, then you will see that the receptacle taking on the appearance of fire or air just means for bodies of fire or air to congregate for a time in this part of the *chōra*.

In conclusion, then, Aristotle is right to take the *chōra* as playing the role of a continuant in change and to that extent the *chōra* is like Aristotelian matter. More particularly, he is right to see the *chōra* as playing the role of the continuant in *locomotion* and, to that extent, like Aristotelian matter. The confusion arises because Aristotle thinks that there are also other forms of change, substantial and qualitative, for which Plato's *chōra* must also play the role of continuant that Aristotelian matter plays. But these are forms of change which the *Timaeus* does not recognize as distinct. Therefore they cannot, as Aristotle thinks, give rise to contradictory descriptions of the *chōra*.

In this chapter I have tried to elucidate Timaeus' account of the receptacle with reference to the motions of the simple bodies. Much emphasis has been placed on the role of locomotion in Timaeus' account of the

[21] Cf. Algra (1994) 116–17.

coming-into-being of the simple bodies. In the next chapter we shall find a similar emphasis on locomotion in Timaeus' account of the human body and soul.

APPENDIX

Timaeus' terms for space/place after 52d3:

Topos: 57c3, 57c6, 58b9, 58c1, 60c1, 85b4, 87a4
(1) *Topos* = place of body: 57c3, 57c6, 58b9, 58c1, 60c1.
(2) Of which in particular, (*idios*) '*topos*' = proper place of body: 57c3 (with *chōra* 57c1), 58b9, 60c1.
(3) *Topos* = a region or part of the human body or soul: 85b4, 87a4.

Chōra: 53a6, 57c1, 58a7, 79d5–6, 82a3, 83a4
(1) Place of body: 53a6, 57c1 (with *topos* 57c3), 79d5–6, 82a3, 83a4.
(2) Of which in particular (*oikeia*) *chōra* = proper place: 53a6 (with *hedra* 53a2), 79d5–6, 82a3 (and alien place: *allotria chōra*).
(3) part or region of human body: 83a4.
(4) (*kenē*) *chōra* = empty place 58a7.

Hedra: 53a2, 59a3, 60c4, 67b5, 72c2, 79b4, 79b6, 80c5.
(1) *hedra* = place of body: 53a2 (with *chōra* 53a6).
(2) Of which in particular *hedra* in opposition to *to kenon* ('the empty'): 59a3, 60c4 (with *topos* 60c1), 79b4, 79b6, 80c5.
(3) *hedra* = region of human body: 67b5, 72c2–4.

CHAPTER 7

Body, soul, and tripartition

From the *Phaedo* we are familiar with the view of the body as a sort of prison for the soul. The body disrupts the proper workings of the soul, giving rise to irrationality in an essentially rational immortal soul. Embodiment is represented as a punishment for the soul. As Socrates puts it, 'the philosopher's soul utterly despises his body and flees from it, seeking to be alone by itself' (65d).

If this is our only impression of Plato's view of the relationship between the body and the soul, then reading the *Timaeus* may come as a surprise. For, as I aim to show, the dialogue offers a more complex and often more constructive view of the role of the body and the contribution it may make to our rationality and happiness. This view is based, I shall argue, on a detailed teleological account of the body and its relationship to the soul. I hope to show that readers of Plato who ignore the *Timaeus* risk getting a seriously incomplete picture of his thought on soul and body. This applies particularly to our understanding of the origin of the tripartite soul and the nature of soul–body interaction, where it might be argued that the *Timaeus* offers the most developed account of any Platonic dialogue.

The argument proceeds as follows. I start by sketching the composition of the world soul according to Timaeus. This is the necessary starting-point since the human soul has its origin in the world soul. I then discuss the relationship between the human soul and the human body. The interaction of soul and body is understood in terms of the motions characteristic of each. When the soul is embodied its motions are differentiated into an immortal and a mortal part. The tripartite soul, however, comes about only as the result of the gods' teleological work. I conclude by bringing out the distinctive contribution of the *Timaeus* in relation to some comments on the soul–body relation in other Platonic dialogues.

THE COMPOSITION OF SOUL

According to Timaeus, the demiurge composed the soul of the cosmos as follows:

> In the middle of the being that is without parts and is always the same and the being that comes to have parts in (*peri*) bodies he mixed from both a third kind, and in the same way he also composed a kind of the nature of the same and a kind of the nature of the other in the middle of the partless sort and the sort that has parts in (*kata*) bodies. And taking the three, he mixed them all into one character, bringing the nature of the other into harmony with the same using force because it mixes badly, and mixed them together with being. And having made one thing out of three, he divided this whole in as many parts as were fitting, each having been mixed from the same, the different, and being.' (*Tim.* 35a1–9)

On the most common interpretation, that of Grube, Cornford, and Robinson,[1] the demiurge composes the world soul as follows. He takes divided and undivided parts of each of being, sameness, and difference. He first mixes the divided and the undivided parts of being together, and then the divided and undivided parts of sameness, and again the divided and undivided parts of difference. Next, he mixes the three compounds together to form the final soul stuff. This is the whole he then goes on to divide 'in as many parts as were fitting'. He divides the soul stuff into intervals according to mathematical ratios and cuts it up into two bands or strips. The strips are bent into circles, one called the circle of the same, another the circle of the different. The circle of the different is further subdivided into seven circles, which move, in accordance with mathematical proportions, inside the circle of the same in different directions and at different speeds.

What is the point of this elaborate account? Plutarch outlines two different interpretations which were common in antiquity.[2] On the 'kinetic'

[1] Grube (1932) 80–2; Cornford (1937) 60–1; Robinson (1970) 70–1. Cf. also Ferrari (1999).

[2] *De An. Procr.* 1012e–1013a: 'The former [sc. Xenocrates et al.] believe that nothing but the generation of number is signified by the mixture of the indivisible and divisible being, the one being indivisible and multiplicity divisible and number being the product of these when the one bounds multiplicity . . . but they believe that this number is not yet soul for it lacks motivity and mobility, but that after the commingling of sameness and difference, the latter of which is the principle of motion and change while the former is that of rest, then the product is soul, soul being a faculty of bringing to a stop and being at rest no less than of being in motion and setting in motion. Crantor and his followers, on the other hand, supposing that the soul's peculiar function is above all to form judgments of the intelligible and the perceptible objects and the differences and similarities occurring among these objects both within their own kind and in relation of either kind to the other, say that the soul, in order that it may know all, has been blended together out of all and that these are four, the intelligible nature, which is ever variable and identical, and the passive and mutable nature of bodies, and furthermore that of sameness and of difference because each of the former two also partakes of diversity and identity' (transl. H. Cherniss, Loeb Classical Library).

reading, as one might call it, the composition of the world soul is supposed to explain the soul as a principle of motion. On the 'cognitive' reading, the point of the mixtures is to account for the world soul's ability to make different sorts of judgment. In support of the kinetic reading we may mention that Timaeus later (57dff.) says that unlikeness is responsible for motion and likeness for rest. This, presumably, was what Xenocrates had in mind when he said that the soul was a principle of motion and rest because of its elements of difference ('unlikeness') and sameness ('likeness'). The kinetic reading also makes good sense of the claim that the circle of the different was divided into seven circles. For it is these seven circles that are later identified with the revolutions of the visible planets.[3] Having described the composition of the soul at 36e, Timaeus also says that the soul was wrapped around the world body and moved around in a circle and thus became the cause (*arkhē*) of the cosmos' unceasing life. Again this suggests that the soul's circular motions explain the way the cosmos moves. On the other hand, it is clear that the soul is first introduced in order to give the cosmos mind (*nous*), that is, the ability to reason (cf. 30b). This would make one expect that the composition of the soul first of all should explain how it reasons. *Tim*. 37a2–c5 also makes it clear that the soul's composition is expressed in acts of thinking. Timaeus says that it is because the soul already has elements of sameness, difference, and being that it is able to think and make judgments about these things.[4]

There is really no need to choose between the cognitive and the kinetic reading. The point of the composition of the soul is to show how the soul moves when it thinks and thinks when it moves. The question is not whether the soul is composed in a way that explains how it is able to move or (exclusive 'or') how it is able to think. At 37a2–c5 Timaeus clearly thinks he has explained both: since then (*hate oun*) the soul has been composed in this way 'and revolves about itself' then when it touches an object being moved it speaks, and 'when the circle moves aright then true judgment arises', etc.[5] That, incidentally, is also how Aristotle understands Timaeus: 'the soul having been composed from elements and divided according to harmonious numbers, he bent the straight soul into a circle so that the soul would both have cognate perception of harmony and move the universe in symphonic motions' (*De Anima* 1.3 406b28–31).

For Timaeus, then, thinking is a form of circular motion. This position is likely to strike us as odd, to say the least. What does it mean to say that the

[3] *Tim.* 38c7–8; cf. Aristotle, *De Anima* 406b32–407a2. [4] See D. Frede (1996).

[5] Notice also 43d–44a, where a reversal of the psychic motions (in man) issues in a corresponding reversal of the soul's judgments regarding sameness and difference.

soul moves around when we think? The position is likely to strike us as even odder when we consider that Timaeus thinks that the soul is immaterial (cf. 36e6 with 28b8–9). For how can something immaterial undergo spatial motion? At this point it is tempting to say, with many scholars, that the language of cyclical motion is merely an image.[6] Thinking is not literally a circular motion, it is only like it in certain respects. However, unless we take the circular motions of the soul literally we have no way of understanding how the soul moves round with the planets. The circular motions of the planets are also the motions of the thinking world soul. The stars revolve around their own axis when they think about the same thing (40a7–b2). Here there seems no alternative to taking the notion of thinking as circular motion literally. Also in support of a literal interpretation, David Sedley has pointed to the significance of the shape of the head.[7] If the circular motions are going to work as an explanation of the sphericity of the head they had better be literally round. These points, then, seem to require us to take a literal interpretation.

A literal interpretation of the circles of the soul has at least two noteworthy implications. The first is that if we take the circular motions literally it follows that Timaeus cannot use spatial extension to define body in contrast to soul. If the soul literally moves round in manner of a circle then it must have spatial extension. But if so, Timaeus' distinction between soul and body cannot be the Cartesian one. How then does Timaeus differentiate soul from body? One plausible suggestion is that it is the perceptibility of body that distinguishes it from soul. Timaeus expresses the contrast between the world body and the world soul as follows at 36a5: 'the body of the heaven has been created visible; but the soul is invisible'. Perceptibility is the basis of the construction of the world body at 31b4–8. Visibility and tangibility are explained in terms of geometrical properties. From the tangibility of the world body Timaeus infers that it is made of solids, i.e. three-dimensional geometrical bodies. This point is confirmed again at 53c4–6, where Timaeus begins the geometrical construction of the four simple bodies by saying that every kind of body must have depth (*bathos*). This need not be taken to say more than that depth is a necessary condition of body and thus tangibility. It need not imply that depth is also a sufficient condition of tangibility. None the less, it may be thought that

[6] Cf. Cherniss (1944) 405–6; Ross (1961) 184; Lee (1976) 85 with n. 28.

[7] Sedley (1997) 329–330. Burnyeat (2000b) also argues in favour of a literal interpretation, mentioning the way the world body is extended within the world soul at 36d–e. Like these authors, I would like to acknowledge my debt to Sarah Broadie's ground-breaking contribution to the 1993 Cambridge May Week seminar on the *Timaeus*.

depth is enough to distinguish body from soul. In contrast, there is no indication that the material out of which the soul is made itself has depth or solidity. True, the circular strips of soul are themselves stretched out so as to cover the entire world body from without and to extend from the centre of the cosmos to the periphery. However, the soul material may stretch inside and outside the spherical world body without itself being 'thick'.[8] Similarly, one might imagine an infinitesimally thin layer of paint spread across the surface of the world body and the bodies within it. The soul stuff would thus not add to the volume of body, even whilst it was extended along the body. In this way the soul could be throughout the world body without adding bulk to it. Nor would the soul occupy space that could otherwise be occupied by body. However the exact story goes, the important point is that for Timaeus body is differentiated from soul by having *specific* spatial attributes (such as depth and solidity) rather than by the possession of spatial attributes as such.

Another implication (which is central to this chapter) is that if we take the motions literally we can understand why Timaeus seems to see no ontological problem in soul–body interaction. Both soul and body are spatially extended and move in space. Because both body and soul move in space we can see how the motions of the soul may affect the motions of the body and vice versa. Body and soul may have different spatial properties, as I suggested in the previous paragraph, but there is no fundamental ontological difference between the two. Gilbert Ryle, in his famous critique of Cartesian dualism, argued that the origin of the category mistake of thinking that the mind was another 'thing' next to the body lay in thinking of mental processes as 'para-mechanical' processes:

> since mental-conduct words are not to be construed as signifying the occurrence of mechanical processes, they must be construed as signifying the occurrence of non-mechanical processes; since mechanical laws explain movements in space, other laws must explain some of the non-spatial workings of minds as the effects of other non-spatial workings of minds . . . Somewhat as the foreigner expected the University to be an extra edifice, rather like a college but also considerably different, so the repudiators of mechanism represented minds as extra centres of causal processes rather like machines but also considerably different from them. Their theory was a para-mechanical hypothesis.[9]

[8] Cf. *Tim.* 34b3–4: ψυχὴν δὲ εἰς τὸ μέσον αὐτοῦ θεὶς διὰ παντός τε ἔτεινεν καὶ ἔτι ἔξωθεν τὸ σῶμα αὐτῇ περιεκάλυψεν . . . An objection by Denis O'Brien has induced me to rephrase this suggestion first made in Johansen (2000) 92.

[9] Ryle (1990), 20–1.

In contrast, it should be clear now (on the literal interpretation at least) that for Timaeus the motions of body and mind both fall under a general mechanics explaining the motions of extended figures (whether two- or three-dimensional) in space. The motions of the soul are not 'like machines but also considerably different from them'. The soul literally moves in space according to the same kind of mathematical regularities as those that govern the motions of bodies. If we find this proposal so difficult to imagine (let alone accept), it may be because of another Cartesian influence, the association of spatial extension with body to the exclusion of mind.

EMBODIMENT AND TRIPARTITION

From the general account of soul I turn now to the body–soul relationship in human beings. The human soul is composed of the same 'stuff' (if slightly less pure) as the world soul and mixed in the same manner (41d4–7). The human soul therefore has the same sorts of motions as the world soul. It has a circle of the same and a circle of the different. The difference between the world soul and the human soul arises when the soul is embodied. By being put in a human body, the soul comes to experience not just the circular rational motions but also the six rectilinear motions: up and down, left and right, forwards and backwards. The world body was so composed by the demiurge as to participate only in circular self-motion (34a). In contrast, the lesser gods now construct the human body in a way that exposes it to all seven sorts of motion:

> they confined the circuits of the immortal soul within the flowing and ebbing tide of the body. These circuits, being thus confined in a strong river, neither controlled it nor were controlled, but caused and suffered violent motions; so that the whole creature moved, but advanced at hazard without order or method, having all the six motions. For strong as was the tide that brought them nourishment, flooding them and ebbing away, a yet greater tumult was caused by the qualities of the things that assailed them, when some creature's body chanced to encounter alien fire from outside, or solid concretion of earth and softly gliding waters, or was overtaken by the blast of air-borne winds, and the motions caused by all these things passed through the body to the soul and assailed it. For this reason these motions were later called by the name they still bear – 'sensations' (*aisthēseis*). And so at the moment we speak of, causing for the time being a strong and widespread commotion and joining with that perpetually streaming current in stirring and violently shaking the circuits of the soul, they completely hampered the revolution of the same by flowing counter to it and stopped it from going on its way and governing; and they violently shook the revolution of the different. Accordingly, the intervals of the double and the triple, three of each sort, and the connecting means of the ratios,

3/2 and 4/3 and 9/8, since they could not be completely dissolved save by him who bound them together, were twisted by them in all manner of ways, and all possible deflections (*klaseis*) and deformations were caused; so they barely held together with each other, and though they moved, their motion was irrational (*alogōs*), now reversed, now sidelong, now inverted. (*Tim.* 43a4–e4, transl. Cornford with alterations)

The circles of the soul are exposed to linear motions through the bodily processes of nutrition and perception. At 43a6, Timaeus employs the image of a river to illustrate the impact of the body's motions on those of the soul. We can elaborate the image as follows. Imagine dropping a stone into a torrid river. The stone makes rings in the water, which, however, are soon disturbed by the motions of the running water. In the same manner, the circles of the soul lose their circular shape under the impact of the motions that flow through the body.[10]

The exposure to the motions of the body has different effects on the two circles of the soul. The motions of the circle of the same stop in their tracks altogether. In contrast, the intervals of the circle of the different are 'twisted'. As a consequence, this circle suffers 'deflections' (*klaseis*) in its motions. For 'deflection' Timaeus uses *klasis*, the only occurrence of the term in Plato.[11] The mathematical context (as indicated by the circles and their mathematical intervals) suggests that the term is used in its technical geometrical sense of a deflection of a line against another line or surface.[12] In other words, we should think of the deflection of the circle of the different as the result of a change of direction in its motions. Affected by linear motions from all directions, the circle of the different moves, as Timaeus says, 'now reversed, now sidelong, now inverted' (43e3–4).

The interplay between rationality and irrationality is thus understood in terms of the interaction of circular and rectilinear motions. The extent to which the soul has become irrational through embodiment can be measured by the extent to which the motions of the soul have changed from being circular towards being rectilinear. This notion receives a comic exemplification in the reincarnation story at the end of the dialogue. We are told here that humans who failed to regain their rationality were reborn as animals with elongated heads that 'took any sort of shape in which their circles were crushed together through inactivity' (92a).

[10] Notice the similarity with Aristotle's use of the image to illustrate the distorting influence of the blood on our sense-impressions in dreams, *On Dreams* 3 461a8–18. Like Timaeus, Aristotle uses the image as an illustration of an account that works entirely in terms of the interaction of κινήσεις.

[11] However, the term may pick up on the non-mathematical use of ἐκκεκλάσθαι at *Rep.* 611d3.

[12] Cf. Aristotle, *Phys.* 228b24. The term is also used in optics for the refraction of light, cf. Aristotle, *Mete.* 343a14, 373a5.

Already in this account of the effects of embodiment on the soul one can discern a differentiation of two parts within the soul. On the one hand, there is the circle of the different whose motions lose their circularity under the influence of rectilinear bodily motions. On the other hand, there is the circle of the same which, at least temporarily (cf. *tote en tōi paronti*, 43c7), is put out of action. The circle of the same comes to a halt, thereby losing control over the circle of the different (*epeschon archousan kai iousan* 43d3). The result is a loss of co-ordination between the motions of the circles of the different. As Timaeus put it, the circles of the different '*barely held together with each other*, and though they moved, their motion was irrational, now reversed, now sidelong, now inverted' (43e2–3).[13] Earlier, we saw that an ingredient of the composition of the soul was 'the being that becomes divided around bodies' (35a2). The circle of the different was particularly related to this divisible being in so far as it was divided into seven sub-circles that moved in different senses. The circle of the same, in contrast, remained undifferentiated. In one sense, then, the pre-embodied soul was divided, in that it consisted of several circles. However, though the soul was internally differentiated in this sense, all of its motions seemed to be perfectly circular prior to human embodiment.[14] With embodiment the circles of the different seem to lose their degree of rational cohesion because the circle of the same is no longer able to co-ordinate them.[15] The lack of co-ordination might be said to exploit the fact that the circle of the different requires the regulating influence of the circle of the same to ensure its rationality. Without the further controlling power of the circle of the same, the circle of the different does not itself have the power to maintain its rational motions when confronted with irrational influences. The soul has a potential for irrationality since it is internally structured in a way that allows some of its motions to lose their circular shape in certain circumstances. One might say that the irrational motions caused in the soul by embodiment bring out a potentiality that the soul itself has in so far as the motions of the circle of the different are not *necessarily* co-ordinated by the circle of the same. If, in contrast, the soul had been a rigorous 'Parmenidean' unity with no internal differentiation of different circles with different compositions, then it would not have had the potential

[13] ὥστε μετ' ἀλλήλων μόγις συνεχομένας φέρεσθαι μέν, ἀλόγως δὲ φέρεσθαι, τοτὲ μὲν ἀντίας, ἄλλοτε δὲ πλαγίας, τοτὲ δὲ ὑπτίας . . .

[14] Cf. the emphasis on the mathematical regularity of the planetary circuits at 38e–39e. We are given no indication of how or why the circle of the different could not be ὀρθὸς ἰών at 37b7 or the circle of the same not εὔτροχος (37c2) until the soul is confined to a human body.

[15] Cf. 44a4: οὐδεμία τε ἐν αὐταῖς τότε περίοδος ἄρχουσα οὐδ' ἡγεμών ἐστιν, contrasting with 36c7–d1: κράτος δ' ἔδωκεν τῇ ταὐτοῦ καὶ ὁμοίου περιφορᾷ.

to react to embodiment in this way. The division between the circles of the same and the different constitutes, to use a seismic metaphor (cf. *seiousai*, 43d1), a fault line in the soul which is activated by the tremors of the human body.

So far I have simply referred to the irrational experiences of the embodied soul as 'perceptions', in accordance with the use of *aisthēseis* at 43a6 as a generic term for the affections caused by the human body. However, in an earlier passage (42a3–b1), where the demiurge predicts to the human souls what will happen to them when embodied, *aisthēsis* is used specifically for one of *three* sorts of affection. This passage is especially important because it introduces the central notion of 'necessity' into the account of the irrational affections:

> Whensoever, therefore, they (the immortal souls) should of *necessity* have been implanted in bodies, and of their bodies some part should always be coming in and some part passing out, it is *necessary* that there arise, first, perception (*aisthēsin*), one for all,[16] arising from violent impressions (*biaiōn pathēmatōn*) and kindred to them (*sumphuton*);[17] second desire (*erōta*) blended with pleasure (*hēdonēi*) and pain (*lupēi*), and besides fear and anger (*phobon kai thumon*) and all the feelings that accompany these and all that are of a contrary nature. (42a3–b1, Cornford transl. with alterations)

The passage underlines the necessary and enforced character of what the soul experiences when embodied. However, there seem to be two notions of necessity in play. The notions roughly correspond to the notions of hypothetical and simple or 'material' necessity developed later by Aristotle.[18] The first is the necessity of embodiment. It is necessary that the souls be embodied *if* the universe is to be complete. For unless the souls are embodied all the three kinds of mortal being will not exist (cf. 41b7–d3).[19] In this instance, it is only hypothetically necessary that the soul be embodied *given the end*, a complete cosmos, which the demiurge wants to bring about.[20] The second necessity, in contrast, relates to the necessity

[16] Timaeus has just said that the first genesis is μία πᾶσιν in order that no one feel slighted (41e3–4), so it makes sense to take αἴσθησιν . . . μίαν πᾶσιν as stressing again that everyone had the same obstacles before him.

[17] That is, kindred with the violent affections, not innate, as Cornford translates; cf. Aristotle's understanding of Timaeus' use of σύμφυτον at *De Anima* 406b30.

[18] Cf. Aristotle, *Phys.* II.9. I am not saying here that Timaeus actually makes the distinction but rather that he uses the notion of necessity in ways that it is helpful for us to articulate in terms of Aristotle's distinction. For a similar point, cf. Strange (2000) 412–13.

[19] The contrast between mortal living beings and immortal ones such as the planets has to be qualified in the light of 41a7–b6.

[20] The other animals are later explained as reincarnated human beings (42b–c, 90e–92c), though it is not clear, at least at this stage, that this is how the demiurge intends that all the necessary kinds of

with which perception, pleasure, desire, etc. arise in the soul when it is embodied. This is the necessity by which the soul is moved through the body because it is affected by external forces. It is necessary that the soul be so moved by the four simple bodies, given their natures. For given their natures the simple bodies will necessarily move in rectilinear ways and therefore they will necessarily deflect the circular motions which they encounter. It is necessary that once the soul has been put in a human body it will be affected by the motions of water, air, etc., simply by the motions that these bodies have in and of themselves. The simple nature of this necessity is indicated here by *biaiōn* at 42a5 and by *biai* again at 43a7.[21] It is this sort of necessity that is described in the second part of the dialogue (47e–69a, sometimes referred to as 'the works of necessity') and which, as we saw in chapter 5, has to be persuaded by reason to work for good ends.

So far I have argued that the affections that cause the circle of the different to undergo irrational motions arise by simple necessity. I now want to show the way in which these affections form the basis for the tripartition of the soul. At 69a Timaeus resumes his account of the creation of man. He begins with what seems to be a recapitulation of 42a–b:

> Of the divine he himself [i.e. the demiurge] undertook to be the maker; the task of making the generation of mortals, he laid upon his own offspring. They, imitating him, when they had taken over an immortal principle of soul, went on to fashion for it a mortal body englobing it round about. For a vehicle they gave it the body as a whole, and therein they built on another form of soul, the mortal, having in itself dread and necessary affections: first, pleasure, the strongest lure of evil; next, pains that take flight from good; daring (*tharros*) moreover and fear, a pair of unwise counsellors; passion hard to entreat, and hope too easily led astray. These they combined with irrational perception (*aisthēsis*) and desire that shrinks from no venture, and so in the manner necessary compounded the mortal element. (*Tim.* 69c3–d6, Cornford transl.)

As the commentators note,[22] there is a close correspondence between 42a–b and this passage. The necessary and terrible affections are here listed as (in that order) pleasure, pain, daring, fear, anger (*thumos*), hope, and perception mixed with desire (*erōs*), where in the earlier passage we had (in that order): perception (*aisthēsis*), desire (*erōs*) blended with pleasure (*hēdonē*) and pain (*lupē*), fear and anger (*phobos kai thumos*) and, finally, 'all the feelings that

mortal being are to be represented. What we can say at this stage is that unless human beings are created, the creation will not be complete, however the lesser gods will then go about ensuring that all the other species are present too.

[21] αἱ δ' εἰς ποταμὸν ἐνδεθεῖσαι πολὺν οὔτ' ἐκράτουν οὔτ' ἐκρατοῦντο, βίᾳ δὲ ἐφέροντο καὶ ἔφερον . . .

[22] Cf. Archer-Hind (1888) 256; Cornford (1937) 281 n. 3.

accompany these and all that are of a contrary nature'. The later passage explicitly mentions hope and daring in addition to those mentioned in the earlier, but this addition can be seen as covered by the reference of the earlier passage to 'all the feelings that accompany these and all that are of a contrary nature'. The two passages also operate with slightly different mixtures: in the earlier passage desire was mixed with pleasure and pain, in the other all the affections are mixed with perception and desire. These differences may be stylistic, but they may also be substantive, indicating that the lesser gods have to some extent altered the combination of affections.

The important difference between the two passages may indeed seem to be that whereas the first makes the affections seem to arise necessarily from the insertion of the immortal soul in the body, the second seems to make the creation of the mortal soul a deliberate act of the lesser gods. The lesser gods 'built on (*prosōikodomoun*, 69c9) another form of soul' and 'they composed (*sunethesan*, d6) the mortal kind (of soul)' by 'mixing' (*sugkerasamenoi*, d5) the affections. This seems to challenge the idea that the affections arise by simple necessity. For if they are the result of the lesser gods' work surely they are the product of rational design rather than mere simple necessity. Let us investigate further.

Like the earlier passage at 42a, 69c–d makes two crucial references to necessity: the mortal soul is described as having dread and necessary affections (*deina kai anagkaia*) and the lesser gods are said to have composed the mortal soul, in the manner described, by necessity (*anagkaiōs*). Cornford sees these references to necessity as referring back to the necessity at 42a, which he took exclusively to be (what I have called) hypothetical. These affections are necessary, according to Cornford, because they are indispensable tools for man if he is to survive on earth. However, this makes little sense of the connection between *bia* ('force') and necessity in the earlier passage and the juxtaposition of *deina kai anagkaia* ('dread and necessary') in the present passage. Surely, if the affections were introduced as necessary for our survival at this point, they should be described as welcome and beneficial rather than as violent and dreadful. The negative epithets of the affections, I think, clinch the point against Cornford: 'first, pleasure, *the strongest lure of evil*; next, pains that *take flight from good*; daring moreover and fear, *a pair of unwise counsellors*; passion *hard to entreat*, and hope *too easily led astray*. These they combined with *irrational* perception and desire *that shrinks from no venture*.' This is no way to describe affections that are necessary from the point of view of our *good*.

However, the fact that these affections are not for our good does not yet give us the conclusion that they are not hypothetically necessary. For it is

possible that the lesser gods gave us these affections exactly *in order* to trip us up. By giving us irrational affections the lesser gods would ensure that some of us will remain irrational and be reincarnated as lower animals. So the irrational affections would be hypothetically necessary in order to ensure that lower animals would be created. However, this puts a *very* negative interpretation on the work of the lesser gods: not only would they not be helping us become rational; by embodying our immortal soul they would deliberately act so as to make us irrational. This interpretation, I think, is inconsistent with the explicit claim that lesser gods were imitating the demiurge (*mimoumenoi*, 69c5), since the demiurge's intentions in creating the immortal soul were entirely benign. So Timaeus says at 71d5–e1 that 'those who composed us remembered the command of their father when he bade that the mortal genus should be made as good as possible'.

The necessity of the affections is therefore best taken as simple, not hypothetical. The necessity attaches to the disordered processes *before* they have been persuaded to co-operate with reason. This is what we would expect given the larger argument of the third part of the dialogue. Having discussed the processes of simple necessity in the second part of the dialogue, Timaeus now goes on to show how this necessity is made to co-operate with reason in the creation of human beings. So we would expect to find a distinction in the passage between, on the one hand, the necessary materials that the gods have to work with and, on the other hand, the order or rational design that they impose on these materials.[23] Our expectation is fulfilled if we read the passage as distinguishing between the simple necessity of the affections and the work the lesser gods perform to make these affections co-operate for our good.

We can detect, then, two stages in the creation of the human soul. At the first stage the lesser gods create the necessary affections not directly or as such but indirectly by inserting the immortal soul in a body. The next stage of the account occurs at 69d5–6 when Timaeus goes on to describe the way in which the gods went about putting the necessary affections to good use for us:

> Fearing lest because of this they pollute the divine (part of the soul), unless it was absolutely necessary (*hoti mē pasa ēn anagkē*), they housed the mortal apart from it in a different dwelling-place in the body, building between head and breast, as an isthmus and boundary, the neck, which they placed between in order to keep the two apart (*hin' eiē chōris*). In the breast, then, and the trunk (as it was called) they

[23] This is the distinction drawn at 47d3–48e1, where he says that the cosmos arose by necessity (that is simple necessity) being persuaded to co-operate with reason for a good end.

confined the mortal kind of soul. And since part of it has a nobler nature, part a baser, they built another partition across the hollow of the trunk, as if dividing the men's apartment from the women's, and set the midriff as a fence between them. (*Tim.* 69d6–70a2)

The shift in grammatical mood in this passage is significant. Whereas up until 69d6 Timaeus had been describing the necessary results of the soul's embodiment in the indicative mood, from d6 on he describes the actions of the lesser gods using *hina* ('so that') clauses with the optative mood.[24] The change indicates a shift in the explanatory status of the account. The organization of the soul is no longer to be explained as a necessary result but as the result of purposeful action. This part of the account then describes the way in which the lesser gods persuade the processes of necessity to co-operate for the best.

The passage acknowledges that some pollution of the divine part might be necessary. Again the necessity is clearly not of the hypothetical sort in so far as it is an obstacle, not an aid, to the goal that the lesser gods are trying to bring about, the purity of our divine part. The necessity is thus best taken to refer back to the necessity of the previous lines, that is, the simple necessity by which the soul suffers irrational affections in the body. The lesser gods proceed to construct the body in such a way that the divine part may be as unaffected by the mortal part as possible and control it as much as possible. The body is divided into three sections, the head containing the immortal part, the chest holding the spirited part and the section beneath the midriff being the seat of the appetitive part. The physiology is largely cognitive, that is, it explains the composition of the body from the point of view of aiding (or at least not hampering) the motions of the intellect. The spirited part is set between the head and the midriff so that 'it might be within hearing of the discourse of reason and join with it in restraining by force the desires, whenever these should not willingly consent to obey the word of command from the citadel (or 'acropolis')' (70a4–7, Cornford transl.). The heart is the source of blood that runs throughout the body so that it can communicate between the intellect and the entire body, ensuring that the intellect is in command of the entire body. The lungs cool the heart, so that being in less distress it may be better able to help the spirited part in the service of reason (70d). The liver is smooth and bright so that 'the influence proceeding from reason should make impressions of its thoughts upon the liver, which would receive them like a mirror and give back visible

[24] Cf. 70a4 (ἵνα τοῦ λόγου κατήκοον . . .), b3 (ἵνα, ὅτε . . .), c7 (ἵνα τό τε πνεῦμα . . .), d3 (ἵν' ὁ θυμὸς . . .).

images' (71b). The spleen serves to keep the liver clean, like a napkin, so that it is always ready to receive the messages from reason (72c). The basic outline of the body, then, shows how the body is so constructed as to aid the intellect in maintaining control over itself and the mortal soul.

We saw that the affections of perception, desire, fear, and courage, etc. are a necessary result of embodying the soul. However, these affections are at first placed together only in one sort of soul, called 'the mortal'. The division of the mortal part into two main parts, the spirited and the appetitive, is a further step. Though desire and fear, courage, etc. seem already to display different degrees of rationality before they are located in different parts of the body (that, after all, is why the spirited part is located nearer to reason than the appetitive part), what allows these to maintain their separate motions and distinctive degrees of rationality is that they are located in separate parts of the body. The body is so composed as to ensure that the different parts of the soul are able to do their proper job without interference from the other parts. The impression is that without a tripartite physiology to go with the tripartite psychology the soul would be the forum of a disorganized and motley set of more or less irrational affections. It would not have the functional differentiation or hierarchical structure that we associate with the tripartite soul. The tripartite psychology, to this extent, depends on a bodily constitution that allows the soul to maintain its order.

The distinction between circular and linear motions continues to play a role within the tripartite psychology. When composing the human body the lesser gods seem to balance our need to preserve our rational circular motions with our need also to experience and control rectilinear motions. These two considerations are reflected in the composition of the marrow. God created the frame of the body, beginning with the marrow. As the place where the soul and the body are tied together, the marrow is crucial to our understanding of soul–body interaction. God created the marrow by mixing the four elements in proportion. Next, Timaeus says,

> he implanted and made fast therein the several kinds of soul; and also from the first, in his original distribution, he divided the marrow into shapes corresponding in number and fashion to the several kinds of soul that the marrow was going to hold. And he moulded into spherical shape the ploughland, as it were, that was to contain the divine seed; and this part of the marrow he named 'brain', signifying that, when each living creature was completed, the vessel containing this should be the head. That part, on the other hand, which was to retain the remaining, mortal, kind of soul he divided into shapes at once round and elongated, naming them all 'marrow'. From these, as if from anchors, he put forth bonds to fasten all the soul. (*Tim.* 73c–d, Cornford transl. with alterations)

Talk of a place where soul meets body may conjure up worrying associations of the Cartesian pineal gland, the place where *res cogitans* and *res extensa* supposedly could interact. However, we have already seen that no such problem need arise for Timaeus. Soul and body are both spatially extended so the idea of locating both in a part of the body need not in itself be conceptually objectionable. Rather the challenge that Timaeus faces is to present a physiology that plausibly shows how the marrow caters for the various motions of the soul. One problem, which scholars have noted here, is how the location of the soul in the marrow can be seen to accommodate the tripartite psychology. I translated with Taylor and Archer-Hind, 'he divided the marrow into shapes corresponding in number and fashion to the several kinds of soul that the marrow was going to hold'. In contrast, Cornford takes the several kinds to refer to other future living species. He does so even though the context clearly requires that the marrow is worked out in relation to the three sorts of soul and there is no other mention in this part of the dialogue of the living beings that will later be generated out of man until 90e. However, he sees the following double difficulty as overriding these concerns:

> It is difficult to understand that the two shapes (spherical and columnar) which are described in the following sentence can correspond to the three parts of the soul, or that the two mortal parts, seated in heart and belly, can be said to wear (*skhēsein*) the columnar shape of the marrow in the bones, to which they are merely rooted or anchored.[25]

Once we consider the fundamental role of circular and rectilinear motions in distinguishing the immortal from the mortal soul, Cornford's problem disappears. The brain is spherical because it carries the circular motions of the intellect. The rest of the marrow is both circular and rectilinear because it carries the parts of the soul that are produced by the influence of rectilinear motions on the soul's natural circular motions. Both the spirited and the appetitive part belong to this category. Once we understand how the opposition between circular and rectilinear motions underlies the distinction between the rational and the more or less irrational parts of the soul, we can also see how the physiological distinction between a spherical brain, on the one hand, and a circular and rectilinear marrow, on the other, is consistent with, and appropriate to, the tripartite psychology. The marrow is appropriately round and elongated in order to allow both for it to be connected to and controlled by the circular motions in the head and for the rest of the body to participate in rectilinear motions. Compare in this

[25] Cornford (1937) 294, n. 4.

respect the description of the creation of the human body earlier at 44dff. The gods made the head round as an appropriately spherical seat of the rational circular motions, but created the rest of the body with flexible limbs in so far as man is also going to participate in the six other, rectilinear, forms of motion. The circular–rectilinear opposition is fundamental to Timaeus' physiology because it reflects the two sorts of motion that living beings undergo as, on the one hand, immortal and rational and, on the other, as embodied and subject to the forces of simple necessity.

Given the good works of the gods, many of the rectilinear motions that human beings undergo are not imposed from without and disruptive of rational order. Rather they are made part of the body's own rational order.[26] When the soul was first embodied all rectilinear motion was imposed on the soul, but given the teleological ordering of some of the rectilinear motions that we experience, the focus is now rather on eliminating those motions of external origin which are not in accordance with this order. Once the body has been fashioned in our best interest, the fundamental opposition between good and bad motions is no longer primarily to be understood in terms of 'rectilinear' *versus* 'circular' motion but rather in terms of imposed motions *versus* self-motion. Even the disturbing appetitive motions are given a purpose (i.e. the body's nourishment, 70d–e) and made subject (through the agency of the liver, cf. 71a–72b) to the rule of reason.

The result of the lesser gods' work is, then, to create man as a teleologically ordered system in which motions that arise by simple necessity and rational motions are combined. Motions that were initially disruptive and chaotic are harnessed to serve a rational end. The result is the creation of a tripartite psychology.

Each of the three parts of the soul thus has its own motions, which should be attended to (89e–90a). Our aim should not be to eradicate the motions of the mortal parts of the soul but to regulate each part so that its proper motion neither overwhelms nor is overwhelmed by the motions of other parts. The rational order of the soul, post embodiment, is not one in which *only* the motions of the intellect thrive but a complex order in which other psychic motions operate alongside those of the intellect in common pursuit of the human good.

[26] An emphasis on circular motion remains in the workings of the lower parts of the soul, such as the respiratory and nutritive systems in which the elements are circulated around the body. But a motion such as vision remains essentially rectilinear (cf. 45c5, κατὰ τὴν τῶν ὀμμάτων εὐθυωρίαν) even though the planetary motions that we are supposed to observe are circular. As just mentioned, we are also equipped with a body that enables us to move in a rectilinear manner. The human body and its functions thus represent a compromise between rectilinear and circular motions.

THE *TIMAEUS* IN CONTEXT

It is time now to bring the message of the *Timaeus* further into focus by comparing it with some other Platonic dialogues. I would suggest that Timaeus' account of the tripartite soul is, generally speaking, different in *emphasis* from that of the *Republic*.[27] In the *Republic* the three parts of the soul are clearly distinguished in terms of the different objects that they desire: the intellect has a proper desire for truth, the spirited part for esteem, and the appetitive for bodily gratification.[28] Similarly, Timaeus makes reference to the spirited part's being a lover of victory (*philonikon*, 70a3) and he describes the appetitive part as 'the part desiring food and drink and such things the soul requires because of the nature of the body' (70d7–8). However, Timaeus presents these parts not so much as having desires that contrast with the desire of reason for truth and wisdom but rather as having desires that themselves serve a rational end. The spirited part listens to reason and carries out its orders, whilst we feel desire for food and drink in order that we may survive. Even the appetitive part has perception of rational commands which is mediated through the images projected by the intellect onto the liver. The marrow's circular shape ensures its continuity with circular motions in the head. The vascular system is constructed so as to allow messages to pass from the intellect to all parts of the body, whilst all parts of the body in turn have perception (*aisthēsis*) so that they can understand the messages received. The cognitive physiology emphasizes the extent to which the lower parts of the soul are geared to co-operating with reason. This point goes some way towards explaining why we are later told that 'human beings by nature (*phusei*) have two sorts of desire, the desire for nourishment (*trophēs*) because of the body and the desire for wisdom (*phronēseōs*) because of the most divine part in us' (88a9–b2). These are both rational desires in the sense that they are desires for our real good. Since Timaeus takes the other parts of the soul to have been fashioned by the lesser gods so as to ensure as much rational order as possible whilst embodied, the workings of all of the soul might be said to express our rational desires. In *Republic* IV (438d–441c), in contrast, the tripartite soul explains how we may have desires that are opposed to our rational desires. In

[27] I deliberately refer to differences in emphasis or outlook between the two dialogues. I do not claim to have identified any disagreements or inconsistencies in doctrine between them.

[28] Cf. Cooper (1984). Note, however, that *Rep.* IV 436aff. seems, initially at least, to distinguish the parts of soul by function (knowledge, anger, etc.) rather than by desires for specific objects. For a helpful summary of the complexities, see C. Gill (forthcoming). I am grateful to him for showing me parts of this work in draft.

Books VIII–IX (543a–576b) the tripartite soul explains the non-philosophical sorts of character in terms of their nurturing the desires of parts of the soul other than those of the intellect.

The apparent contrast between the two dialogues can be lessened in several ways. First, Timaeus allows for a similar explanation of conflict between the intellect and the lower parts, though in accordance with his brief as a natural philosopher, he recasts the explanation in terms of the disproportionate strength of the *motions* of the appetitive and spirited parts. Second, it should be pointed out that the *Republic* by no means always presents the lower parts of the soul as being in conflict with the intellect. The case in which the parts of the soul are in conflict with each other is a useful way of introducing the distinction between the three parts, but that does not mean that we should take this case to be representative of the general, let alone the natural, state of the soul. In general, the argument to show that the individual will only be happy if all the parts of the soul are harmonized under the rule of reason surely presupposes that the lower parts of the soul are fundamentally able to co-operate with ends that have been determined by reason.

Nevertheless, the general difference in emphasis between the *Timaeus* and the *Republic* remains. While the *Timaeus* emphasizes that the lower parts of the soul and their bodily organs are organized by the lesser gods so as to aid the aims of reason, the emphasis in the *Republic* is more often on showing how the non-rational parts have desires which may oppose what reason tells us to be good. Thus Timaeus does not use the desires of the lower parts to demarcate these parts as non-rational and as opposed to the desires of the intellect. Rather, he attempts to show how an essentially rational soul works within the body by using those motions that the body necessarily gives rise to in order to further our rationality whilst embodied. The spirited and appetitive parts for Timaeus thus appear as a sort of 'devolved rationality' in our embodied state,[29] by which I mean that the lower parts, as we saw, have assumed rational functions in the body.[30] The tripartite soul is the lesser gods' way of furthering our rationality given that we have to be embodied.

It might seem preferable to describe the result of embodiment as a devolution of *irrationality* to the lower parts of the soul in the sense that the irrational motions that necessarily arise in the rational soul when embodied

[29] I owe the expression to John Cooper.

[30] In other words, I do not use 'devolved' to mean 'evolved from' or 'developed from' though it is no doubt relevant to the fact that the lower parts can now execute rational functions that they have their origin in a fully rational soul.

are set apart from the intellect.[31] Thereby the intellect is allowed as far as possible to maintain its circular rational motions whilst the irrational motions are passed on to the lower parts. The purpose of such a devolution of irrationality would be to ensure that at least this part of our soul, the intellect, retained its circular motions. As separate, the intellect can then continue exercising rational control over the rest of the soul and the body. My reason for preferring to talk of devolved *rationality* lies in the distinction I drew earlier between two stages in the creation of the human soul. At the first stage embodiment brought about a range of irrational affections in the soul, particularly, it seemed, in the circle of the different. At the second stage the lesser gods organized those affections so as to serve rationality within the entire living being. The lower parts of the soul are not just set apart from the intellect (though that happens too); they also work together with the intellect in bringing about the ends that the intellect prescribes. I talk therefore of devolved rationality to emphasize the positive point that the lower parts of the soul co-operate with the intellect in maintaining rational order in the entire living being.

The implications of this view of the lower parts of the soul for the concept of the self are far-reaching.[32] To the extent that rationality is devolved to the lower parts of the soul, our rational self extends to those other parts whilst we are embodied. In contrast, one often has the impression in other Platonic dialogues, particularly the *Phaedo*, that, even whilst we are embodied, the intellect alone remains our true self, whereas those aspects of the soul which are associated with the workings of the body appear extraneous to the self. The *Timaeus* emphasizes that the intellect should remain in control over the other parts (90a–d). However, the other parts of the soul have their own distinctive motions that contribute to our greater rationality and well-being whilst we are embodied. Consequently, our rationality is not exhibited simply in rational contemplation in disregard of the influence of the body, but in the pursuit of a composite life of soul and body. Caring for the self, as we saw, extends to caring for the entire tripartite soul, not just the intellect.

Caring for the self also involves caring for the body. I argued earlier that the body was organized in a way that allowed the soul to maintain its hierarchical tripartite structure with the intellect in command. The body is in this sense part of a psychosomatic whole which allows us to pursue a good life under the rule of the intellect. Again the point is explained in terms of proportionality of motions. Good proportion, Timaeus claims, is

[31] I owe this suggestion to David Sedley.

[32] Christopher Gill argues for a similar conclusion in his forthcoming *The Self as Structure*.

a necessary condition of beauty and goodness. But living creatures are composites of soul and body. Therefore, if they are to function well, they have to maintain good proportion between soul and body. Lack of proportion between the motions of the two is the main cause of disease:

> Just as a body that is out of proportion because the legs or some other members are too big, is not only ugly, but in the working of one part with another brings countless troubles upon itself with much fatigue and frequent falls due to awkward convulsive movement, so is it, we must suppose, with the composite creature we call an animal. When the soul in it is too strong for the body and of ardent temperament, she dislocates the whole frame and fills it with ailments from within; she wastes it away, when she throws herself into study and research . . . On the other hand, when a large body, too big for the soul, is conjoined with a small and feeble mind . . . the motions of the stronger part prevail and, by augmenting their own power while they make the powers of the soul dull and slow to learn and forgetful, they produce in her the worst of maladies, stupidity. (*Tim.* 87e1–88b5, transl. Cornford)

The ailments are prevented by exercising the motions of body and soul proportionately:

> Now against both these dangers there is one safeguard: not to exercise the soul without the body, nor yet the body without the soul, in order that both may hold their own and prove equally balanced and sound. So the mathematician or one who is intensely occupied with any other intellectual discipline must give his body its due meed of exercise by taking part in athletic training; while he who is industrious in moulding his body must compensate his soul with her proper exercise in the cultivation of the mind and all higher education; so one may deserve to be called in the true sense a man of noble breeding. (*Tim.* 88b6–c6)

Notice that the passage is not simply making the point familiar from *Republic* 411e that the guardians should take physical exercise (*gumnastikē*) along with the education of the soul (*mousikē*). There the point was that *gumnastikē* was a way of developing the spirited part of the soul, i.e. it was a way of working on the soul through the body. But here the aim is not to affect the soul through the body, at least not directly, but to keep a proportion between the motions of the soul and those of the body independently of each other. This assumes a degree of interest in bodily processes independently of their relation to the soul.

In comparison with the *Phaedo* the passage suggests that the motions of the body are not seen simply as a hindrance to a good life but as a part of a more positive view of embodied life. Timaeus shows in detail how the affections that necessarily arose with embodiment and which initially simply disrupted the soul can contribute to our greater rationality and

well-being within a rationally ordered body. Though a purely rational and disembodied life (at least in the sense of having no *human* body) seems to remain the ultimate ideal of happiness for Timaeus (cf. *bion eudaimona*, 42b4), the human body appears less like a prison for the rational soul and more, as one might put it, like a rather comfortable hotel with quite a few research facilities built in. There are suggestions in the *Phaedo* that perception (and by implication the body) is necessary in some sense for recollection (cf. *Phd*.75a) and might in such a sense be instrumental to our happiness.[33] However, the *Timaeus* gives a much more assertive and explicit account of how the body is designed with a view to increasing our rationality.

One might make a similar point with respect to the famous image in *Republic* x (611b9–d8). The embodied soul is like Glaucus, the sea-deity, who has been deformed by the battering of waves and the encrustation of shells and seaweed. Cleared of these, however, he appears not like a monster but like the god he is. There is a debate (which I shall not enter here) about whether this image implies that the immortal soul is unitary or in some sense tripartite. However this may be, we can see how the passage could be read from the point of view of the *Timaeus*. Timaeus would agree with Socrates that our '*original*' nature, as they both say,[34] is our rational soul. He would also concur in attaching greater value and immortality (at least of the sort available to created beings) to the intellectual part of the tripartite soul. However, for Timaeus the human physiology is presented not so much as an obstacle to our happiness as a way of promoting it given that we have to be embodied. In the same way, the tripartite soul is not simply to be considered as an obstacle to rationality but rather as a way of aiding the intellect in pursuing a good life for us while we are embodied. Timaeus would therefore resist the implications of the image *if* it is taken to mean that embodiment is necessarily *only* to be viewed as a monstrous accretion to the soul. For Timaeus the tripartite soul is established in the context of a physiology that allows the parts to perform their proper tasks without interference from each other. Each of the three parts of the soul is housed in organs whose shape and location in the body allow it to maintain its proper motions. Individual parts of the body seem to have been composed as the necessary instruments for individual parts of the soul in performing their proper tasks. We are in this respect closer to an Aristotelian teleological conception of the relationship between the psychic parts and their proper

[33] Such a suggestion, however, has to be squared also with *Phd.* 65a–c.

[34] *Rep*. 611d2 τὴν ἀρχαίαν φύσιν; *Tim*. 90d5 τὴν ἀρχαίαν φύσιν; cf. *Tim*. 42d2 τῆς πρώτης καὶ ἀρίστης . . . ἕξεως.

organs than we are to anything that is explicitly offered in Plato's other dialogues.

This conclusion should come as no surprise to us given the general nature of Timaeus' project, namely, to show how the whole cosmos, body and soul, is arranged for the greatest possible good. One might say that the change in emphasis between the *Republic* and the *Timaeus* reflects the fact that the *Timaeus* explicitly sets out to integrate the entire living being, body and soul, into a teleological account. The *Republic* in its concern with setting out a programme of rigorous intellectual education and the negative consequences of ignoring this education naturally downplays the positive contributions that the lower parts of the soul and the body may make to the overall happiness of the individual and the city. Therefore we need not say that Plato changed his mind between the *Republic* and the *Timaeus*, only that in the *Timaeus* he readdressed the tripartite soul and its relationship to the body from the point of view of a cosmic teleology.

The most significant contribution that the *Timaeus* makes to our understanding of Platonic psychology may lie in its distinctive account of the origin of the tripartite soul. This point may be brought out by comparing the *Timaeus* with standard, here oversimplified, readings of the *Phaedo* and *Phaedrus*. In the *Phaedo* the soul seems to be essentially unitary and rational as we see for example in the argument from the kinship with forms (78b–80c). In contrast, the image of the chariot in the *Phaedrus* presents the soul as having three parts already prior to embodiment (246a–b). In comparison to these claims, the *Timaeus* occupies a more developed half-way house.[35] The soul is not tripartite before it is embodied. Tripartition only arises when the irrational and rational motions of the soul are organised by the lesser gods within the human body. However, the soul is not strictly speaking a unity either in its pre-embodied state. For not only did different ingredients reluctantly have to be mixed in order to create the soul; but once the soul 'stuff' had been mixed it was then divided into the circles of the same and the different, each of which was put in charge of grasping different sorts of entity. There was thus already a certain structural and functional differentiation within the soul even if the different circles moved in perfect mutual harmony. I have argued that this internal differentiation of the soul provided the template for the division within the embodied soul between more and less rational parts. This division could be attributed to the tendency of the circles of the different to lose their proper ratios ('rationality') unless

[35] Cf. Reydams-Schils (1999) 64, who, on different grounds, argues that in bringing together 42a–b and 69c–d 'Plato has reconciled "the Socratic" model known best from *Phaedo* (as in 81c and in 83d) with his tripartite psychology.'

regulated by the circle of the same. Embodiment in this sense brought out a potential for irrationality already inherent in the soul's original composition. The *Timaeus* thus explains in a way the *Phaedo* does not why a soul which is essentially rational can nevertheless be susceptible to irrationality. Yet the *Timaeus* explains this without attributing fully articulated tripartition to the immortal soul in the manner of the *Phaedrus*. In this way the *Timaeus* might favourably be seen to avoid certain problematic questions raised by the *Phaedrus* about what exactly an appetitive or a spirited part would be doing when the soul is separated from a body.

In conclusion, I hope to have shown in this chapter that the *Timaeus* deserves more than a mention in the history of philosophical psychology. Not only does the dialogue have original things to say about the nature of soul–body interaction and the origin of the tripartite soul; it also presents a detailed teleological picture of living beings as psychosomatic wholes. The dialogue forces us to rethink the image of Plato as enemy of the body.[36]

[36] A version of this chapter appeared as Johansen (2000). It was originally delivered to seminars at Princeton and Toronto, where I learnt a great deal thanks, in particular, to Sarah Broadie, John Cooper, Eric Csapo, Brad Inwood, and Christian Wildberg. I have also had helpful advice from Myles Burnyeat, Christopher Gill, Dominic Scott, David Sedley (as the editor of *Oxford Studies in Ancient Philosophy*), and Frisbee Sheffield.

CHAPTER 8

Perception and cosmology

> For Plato [the whole world of sensible things] is an image, not a substance. You cannot, by taking visible things to pieces, ever arrive at any parts more real than the whole you started with. The perfection of microscopic vision can bring you no nearer to the truth, for the truth is not at the further end of your microscope. *To find reality you would do better to shut your eyes and think*.[1]

I start with Cornford's diagnosis of Plato's view of the perceptible world and perception. Cornford reacted with justification against Taylor's assimilation of Timaeus to a modern positivistic view of science. Taylor had suggested that the status of our accounts of the natural world as merely likely could ultimately be overcome with the progress of empirical science. The *Timaeus* story was for Taylor a myth only 'in the sense that it is the nearest approximation which can "provisionally" be made to exact truth'.[2] Cornford was surely right to object that our accounts could *in principle* only ever be likely in so far as they are accounts of a likeness.

Cornford's and Taylor's positions are contraries but not contradictories. For whilst mutually exclusive, they are not jointly exhaustive. Whilst Taylor gives too much to perception, I want to argue that Cornford gives too little. In natural philosophy perception stands in a complex interactive relationship with reason. It is the aim of this chapter to analyse this relationship.

SENSE PERCEPTION AND NATURAL PHILOSOPHY

As we saw in chapter 3, Timaeus starts his account by making some distinctions. The first distinction is between 'what always is and has no becoming (*genesis*)', on the one hand, and 'what is always becoming but never is (or never *really* is, cf. 28a3)', on the other. The first can be grasped by thinking with a *logos* (*noēsis meta logou*), the second is grasped by opinion together

[1] Cornford (1937) 31 expounding Plato's position in the *Timaeus*. [2] Taylor (1928) 59.

with perception which is without a *logos* (*doxa met' aisthēseōs alogou*). He uses the distinction to set up a second distinction between two sorts of creative act. In one case, the maker uses something that always is as his model; in the second, his paradigm is something that has come into being. If the model is eternal, then the product is necessarily beautiful, if it is generated the outcome cannot be beautiful (28b2). So which is true of the cosmos? First of all, the cosmos must have come into being. It is visible and tangible, i.e. perceptible, and therefore, according to the first distinction, it must also belong in the category of what has come into being. Second, the maker of the cosmos must have used an eternal model. For it is the most beautiful of all creations and therefore, according to the second distinction, it must have been modelled on something eternal rather than on something that has come into being.

Having made these claims Timaeus goes on to point out the consequences for cosmology:

> Again these things being so, our world must necessarily be a likeness of something. Now in every matter it is of great moment to start at the right point in accordance with the nature of the subject. Concerning a likeness, then, and its model we must make this distinction: an account is of the same order as the things which it sets forth – an account of that which is abiding and stable and discoverable by the aid of reason will itself be abiding and unchangeable (so far as it is possible and it lies in the nature of an account to be incontrovertible and irrefutable, there must be no falling short of that); while an account of what is made in the image of that other, but is only a likeness, will itself be but likely, standing to accounts of the former kind in a proportion: as reality is to becoming, so truth is to belief (*pistis*). If then, Socrates, in many respects concerning many things – the gods and the coming-into-being (*genesis*) of the universe – we prove unable to provide accounts at all points entirely consistent with themselves and exact, you must not be surprised. If we can furnish accounts no less likely than any other, we must be content, remembering that I who speak and you the judges (*kritai*) have only a human nature, and consequently it is fitting that we should, in these matters, accept the likely story (*eikota muthon*) and seek no further. (*Tim*. 29b1–d3)

Cornford reads this passage as reiterating what he takes to be the message of the image of the line in the *Republic*: 'The substance of our account of [the objects of physics] must be related to truth in the same way as Becoming to Being – the relation of likeness to reality. This analogy was symbolized in *Republic* VI by the Divided Line, of which the lower part stands for belief (*doxa* or *pistis*) and its changing objects, the higher part for rational understanding and true reality. There is, accordingly, no such thing as a science of Nature, no exact truth to which our account of physical things can ever hope to approximate' (Cornford, 1937, 29). He takes Timaeus to

say that since the object of physics is becoming, its corresponding mode of cognition is belief with sense perception, exclusively. Its object is contrasted with 'the objects of mathematical science [which] are timeless and invariable'. When Timaeus says that reality stands to becoming as truth to belief he means to place physics on the side of becoming only. Cornford is thus reading 29b1–d3 as if it was simply reiterating the contrast between being and becoming that Timaeus first states at 27d5–28a4 and placing the physical world on the becoming side of that contrast.

As Geoffrey Lloyd has pointed out, Cornford's reading, in effect,[3] collapses Timaeus' position into a Parmenidean-style dismissal of the physical world as unintelligible.[4] However, Timaeus' view of the subject matter of natural philosophy must be more complex than this, for at least three reasons. First of all, he is not just saying that the physical world has come to be, he is saying that it has come to be as an *eikōn* of an intelligible reality. He contrasts this sort of *eikōn* with the sort that comes about when the craftsman looks at a model that has come into being. This world is beautiful and good because its maker and its paradigm were good.

Secondly, as a way of maximizing the goodness and beauty of the cosmos, the demiurge imposed order on his materials which were previously moving in a disordered manner (30b). He gave the cosmos *nous*, intelligence, and as a consequence also *psuchē*, soul. The soul is extended throughout the cosmic body so that the cosmos has within it an intelligent soul governing its motions. Later we find that those opposite principles of being and becoming which Cornford used to contrast the objects of reason and the object of natural philosophy are themselves mixed into the composition of the world soul, as we saw in chapter 7. Cornford himself makes the point that the composition of the world soul makes it intermediary between the worlds of being and becoming. But he fails to draw the consequence for the status of natural philosophy. For Timaeus the world soul is the most important object of natural philosophy not only because it is the 'mistress and governor' of the world body, but also because the crucial ethical purpose of natural philosophy is to be achieved by assimilating one's own psychic motions to those of the world soul.[5] It cannot be right to say that the object of natural philosophy is just the world of becoming if its primary object, the world soul, is itself a mixture of becoming and being.

[3] Lloyd (1991) 346.

[4] Characteristically, Cornford (1937) 30 relates Timaeus' understanding of *eikōs* to its use in Parmenides fr. 8.60, Xenophanes fr. 35 and Hesiod, *Theog.* 27 to mean 'plausible but deceptive'.

[5] Cf. Sedley (1997).

Thirdly, it cannot be right in any simple way to oppose, as Cornford apparently does, mathematics as belonging to 'the field of eternal truth' with 'the region of physics' (29). Both the world body and the world soul are composed according to geometrical principles. There are in fact very few, if any, of Timaeus' explanations that do not derive from basic geometrical premises. Compare, for example, the widespread use of separation and composition (*diakrisis* and *sugkrisis*) in the account of the human body, processes which are based on the geometrical properties of the primary solids. It may of course be that geometrical structures do not endure in physical objects (cf. 52a4–7). But the fact that particular physical objects are subject to change does not preclude them from temporarily instantiating geometrical patterns nor from changing according to geometrical regularities. Timaeus still accounts generally for the ways in which different *kinds* of physical object behave in terms of their geometrical composition. Such accounts clearly rely on mathematical understanding. When Timaeus introduces his account of stereometric composition (53b7–c3) he explains that the interlocutors will be able to grasp the unusual account (*logos*), only because they have the requisite education, *paideusis*. Given the nature of the subsequent account the term *paideusis* here clearly implies mathematical expertise.[6]

The *Timaeus* never explicitly relates its use of mathematics to the contrasts of being vs. becoming, reason vs. *doxa* with perception. If we do read the *Timaeus* against the background of the divided line, it is tempting (*contra* Cornford) to link the role of mathematics in articulating order and beauty in nature to the intermediary role of mathematics between forms and sense particulars in the divided line. The physical world would be shown to be an image of the forms to the extent that it displays mathematical order. In the terms of the Line, the *Timaeus* would be exploring the interrelationship between the line segments of sense particulars and mathematical hypotheses, *pistis* and *dianoia*, on the assumption that if we could show the sense particulars to be expressions of mathematical order then it would also follow, through the intermediary position of mathematics, that the sense particulars were also modelled on the forms.

Whatever we make of the relationship between the *Timaeus* and the *Republic*, the internal evidence of the *Timaeus* is enough to show that Cornford cannot be right to confine natural philosophy to perception with belief. Natural philosophy does give accounts, predominantly of a mathematical nature. The demonstration that mathematical structures underlie

[6] Thus Burnyeat (2000b).

perceptible objects seems intimately connected with demonstrating the considerable degree of rationality and order with which the demiurge has invested this world in order to make it as good as possible. But this description immediately raises questions about the relationship between perception/belief and mathematics. How does perception operate in relation to mathematical understanding in natural philosophy? This question is the main topic of this chapter. Given the central role of astronomy within Timaeus' physics, I shall focus my comments on the role of perception in astronomy.

The issue has been widely discussed in relation to Socrates' famous injunction in the *Republic* that 'we shall leave the things in the heavens alone' (530b) in favour of an abstract geometrical astronomy. Some have taken this statement as a ban on empirical inquiry, others have seen it as compatible with a properly defined use of empirical evidence within astronomy.[7] Whatever line one adopts on this issue in the *Republic*, and I shall not enter the debate here, it is generally accepted that in the *Timaeus* astronomy is about the visible heavens and that it, at least to some extent, seeks to explain the planetary motions that we can observe. Indeed, as far as the dialogue's view of our aims in life is concerned, it is important that the astronomy we conduct is about the motions of the visible planets since our souls are somehow supposed to become joined with them through the study of astronomy.

My approach to the question of the role of perception in astronomy in this chapter is this: I shall be asking what sort of data Timaeus thinks perception delivers to astronomical theory. That is to say, I shall be looking at how perception works as a faculty in relation to reason when we do astronomy à la Timaeus. I shall not attempt to garner particular passages that illustrate how Timaeus in practice uses observation to support this or that statement about the motions of the planets. I shall therefore not attempt either to assess the extent to which Timaeus' astronomical theories are justified by or explain 'empirical' data in a sense that we might recognize. My justification for adopting the other approach is that before we ask whether and how Timaeus uses empirical evidence to justify a particular claim, one might want to establish whether, and if so in what sense, Timaeus would count the evidence as empirical in the first place, given his view of how perception functions in relation to reason.[8] There is reason, therefore, before we ask the important questions about the role of the *Timaeus* in the history

[7] For the range of views cf. Vlastos (1980) 3–5, Mourelatos (1980) 34–5, Lloyd (1991) 348–9, Gregory (2000) 48–73.

[8] I am grateful to Geoffrey Lloyd for forcing on me the need to distinguish these two approaches.

of observational astronomy, first to look at how Timaeus understands the interplay between the faculties of perception and reason in the study of astronomy.

THE TELEOLOGY OF PERCEPTION

That perception should play a role in our understanding of how the planets move is shown by Timaeus' teleological account of perception, and of vision in particular. Astronomy studies the motions of the world soul. The world soul itself is invisible (36e6). However, the universe contains visible evidence of its motions. First of all, the planets have been created as the timekeepers of the motions of the soul (38c3–39b2). Secondly, the Sun was created in order to illuminate the motions of the planets enabling us to observe the numbers according to which the motions of the world soul move:

> And so in order that there might be a conspicuous measure for the relative speed and slowness with which they [the heavenly bodies] moved in their eight revolutions, the god kindled a light in the second orbit from the Earth – what we now call the Sun – in order that he might fill the whole heaven with his shining and that all living things for whom it was appropriate might possess number, learning it from the revolution of the Same and uniform. Thus and for these reasons day and night came into being, the period of the single and most intelligent revolution. (39b2–c2; transl. Cornford)

As we saw in chapter 5, the goal or *telos* of the sun coincides with that of vision. Both have been fashioned so as to give us an idea of number:

> Sight, then, in my judgment is the cause of the highest benefits to us in that no word of our present discourse about the universe could ever have been spoken, had we never seen stars, Sun, and sky. But as it is, the sight of day and night, of months and the revolving years, of equinox and solstice, has caused the invention of number and bestowed on us the notion of time and the study of the nature of the world, whence we have derived a kind of philosophy (or 'the kind': *philosophias genos*) than which no greater boon has ever come or shall come to mortal kind as a gift from heaven. (47a1–b2, transl. Cornford with alterations)

This passage presupposes the distinction between the *aitía* and the *sunaítia* of sight. Timaeus says that the mechanisms by which vision happens are not the *aitía* of vision (reason or cause) but only its *sunaítia* (contributory reasons or causes).[9] The real *aitía* of vision is the reason *why* the gods

[9] This distinction is called for because Timaeus began his account of vision by saying that the following was the *aitía* of the eyes; cf. 45b3–4: τοιῷδε ἐνδήσαντες αἰτίᾳ. On the *Nachleben* of the distinction, cf. Hankinson (1998) 154, 243–4 and *passim*.

gave us vision, namely, that we should order our souls by determining, through observation, the number and time of the revolutions of day and night, month and year (47a2–c4). By observing the ordered revolutions of the planets, the motions in our own souls become similarly ordered. This assimilation is possible because there is a kinship between the motions in our souls and the motions of the planets.[10]

The strongly teleological flavour of the account was reinforced by Timaeus' description of the mechanisms of vision. As we saw in chapter 5, the *aitía* of vision was in telling fashion reflected in its *sunaítia*. The *aitía* was to observe the planetary revolutions starting with the most intelligible single revolution of day and night (39c1–2; cf. 47a5). The revolution of day and night has been made clear to us by the appearance and disappearance of the sun's light. Similarly, the eye's light disappears after each day and reappears the next day. The sun's light and the eyes thereby show that they have the same *aitía*.

In sum, Timaeus has made two related points: the first is that the universe has been created in such a way that its regularities are observable. The Sun was created so that we should be able to see the planetary motions. The second is that *we* have also been created so that the regular motions of the heavens can actually be observed by us. The co-ordination of the creation of the sun with the creation of our cognitive capacities demonstrates the extent of the gods' foresight. But it also confirms the positive role that the demiurge from the beginning of his creation planned that perception should play in our cognitive development. Perceiving the cosmos is the first step that we need to take in order to benefit from this design. It is from sight, as Timaeus put it, that we derived philosophy.[11]

TIMAEAN EMPIRICISM?

A strongly teleological message has emerged. But in what sense does philosophy come from sight? Since the purpose of vision is our increased understanding of number and particularly the numbers that govern the planetary motions it must be right to say that perception is meant to make *some* contribution to astronomical understanding. However, the exact nature of this

[10] 47b7: συγγενεῖς ἐκείναις οὔσας. It is important to emphasize that perception has become an aid to reason only as a result of the gods' *pronoia*. At first, perception was an obstacle to reason (43c5–7, perception is referred to as *alogos* at 69d4). For further analysis of the two stages of the creation of man, see chapter 7 above.

[11] Notice also that visible models are said to be necessary in order to explain the more complicated planetary motions (40d).

contribution is still unclear. At the very least Timaeus seems committed to holding that vision is a necessary condition of astronomical understanding. So 47a2–4 implies that having seen the heavens is a *sine qua non* of Timaeus' account. However, this claim is compatible with quite opposite epistemological positions. The key question when it comes to ascribing empiricism or its traditional alternative, rationalism, is not whether perception is a necessary condition of knowledge. Both the empiricist and the rationalist may agree that perception in some way is required for knowledge. What they typically disagree about is the extent to which the *information* we require for knowledge comes from perception, i.e. the extent to which knowledge is epistemically dependent on perception. The rationalist will argue that perception is insufficiently rich to deliver the content of knowledge. She will stress the crucial work of conceptualization or interpretation which reason performs on the perceptual input. The now classic argument from 'the poverty of perceptual input' serves to show that perception provides insufficient input to account for the information that we process in knowledge. We have to infer that the mind draws on its own internal resources in working out what we know. The empiricist, in contrast, will try to show the continuity between what is observationally 'given' and the content of our knowledge states, through processes such as abstraction or association. The distinction between empiricism and rationalism need not be seen as hard and fast but may be presented as a matter of the degree to which one assesses our dependency, in the move from perception to knowledge, on information that we bring to bear on the perceptual input by virtue of being rational.

In the *Timaeus* it is pretty clear that knowledge of forms (*nous*) is epistemically independent of perception. For it is the discreteness of true belief and *nous* which provides the evidence that there must be forms over and above the sense particulars (51d–e). This argument would seem to be endangered by an admission that the forms are themselves in any way accessible through sense perception. It is only if sense perception does not give us any information about the forms that we can be sure that the forms really are separate from sense particulars.

However, this still leaves the status of *astronomy* uncertain. Some passages make it clear that Timaeus cannot mean that astronomical understanding is simply a matter of observing the planets. He inveighs against those who think 'the most certain demonstrations about the heavenly bodies are given through sight' (91e), i.e. rather than through reason, suggesting that such men will be reincarnated as birds. He also criticizes those who use hearing of sounds to gain pleasure rather than understanding (47d). At the very least,

these passages show that observing the planets is not a sufficient condition of astronomical understanding. On another occasion (39c5–d2), Timaeus emphasizes that many of us are ignorant of the more complicated planetary revolutions because we do not try to measure them when observing them. Here measuring the planetary motions seems to come on top of simply perceiving them. Perception on its own does not give us astronomical understanding, otherwise the 'bird brains' would have it. The application of mathematical skills seems to be what sets the bird brains apart from the real astronomers. In a similar vein, 40c–d suggests that those who take fright at eclipses do so because of their inability to calculate (*logizesthai*). The heavens will not reveal their mathematical secrets without us applying our minds. Hearing, Timaeus tells us (47d3), has to be used *meta nou*, with reason, in order to produce harmony in the circles of our intellect. Vision has to be used in order for us to observe the motions of reason (*nous*) in the universe for the benefit of the circles of our own reasoning (*dianoēsis*) (47b6–8). So when vision is properly used we are assimilating our rational soul to the world soul which is itself invisible (cf. 36e6). In other words, when Timaeus describes the proper use of perception he emphasizes the efforts of reason.

This evidence is compatible, however, with two different interpretations. Interpretation (A): perception provides the basic concepts of astronomy, e.g. the idea of number, but it is the work of reason (*nous*) to analyse and calculate the numerical relationships that govern the planetary motions. On this interpretation perception would give some epistemic input though reason would play the crucial role in processing this information. Plato does think perception can give us the notion of one thing and two things but reason is required in order correctly to understand and apply these concepts. As a parallel text, Interpretation (A) might point to the famous finger passage in *Rep* 523a–525a. Here Socrates contrasts the cases where perception is a sufficient judge (e.g. that this is a finger) with those situations in which perception delivers contradictory verdicts and which therefore call for the arbitration of reason (*noēsis*) (e.g. that this finger is small or big). The passage might be taken to suggest both that perception on its own has the conceptual wherewithal needed to make simple judgments and that even where perception cannot itself decide whether something is one or two but requires the help of reason, perception has nevertheless represented something as one and two before reason is called upon to arbitrate. Interpretation (B): perception does not itself present mathematical information, rather it provides perceptual stimuli that activate reason's own concepts. On

this interpretation the contribution of perception to astronomy is purely causal. As a parallel text Interpretation (B) could point to the final argument against the thesis that perception is knowledge at *Theaetetus* 185c–d. Here Theaetetus concedes that we perceive numbers along with other common notions through the soul itself and not through the sense organs. Not everybody would agree that the passages from *Republic* and the *Theaetetus* point to different positions, but I offer these texts here just as examples of the kind of evidence that might be employed, as well as to indicate Plato's sensitivity to the importance in epistemology of the issue of the contents of perception.

Both interpretations have something to be said for them and I shall structure my argument in terms of a dialogue between the two positions. Interpretation (A) could refer to several points already mentioned in the discussion of the teleology of perception. Why does Timaeus offer such an emphatically teleological account of perception if he merely has a causal role in mind for perception? At *Phaedo* 75a Socrates, even whilst expounding the theory of recollection, says that our conception of the Equal and suchlike 'derives from seeing or touching or some other sense perception, and cannot come into our mind in any other way'. Here, in a dialogue that generally presents the body as a distraction to philosophy, perception nevertheless seems to be a necessary condition of recollection in the sense of a causal trigger. But in the *Timaeus* we seem to get a new and more constructive role assigned to perception in philosophy: 'it is from sight that we derived philosophy'. It is surely rather disappointing after Timaeus' many teleological gestures if perception ends up playing no richer epistemic role than in the *Phaedo*, as Interpretation (B) would have it. Notice also (Interpretation A might continue) that Timaeus claims, without qualification, that the periods of the day and night, months, and the year by *being seen* have brought about the invention of number and a notion of time (47b4–7). It is surely true of all human beings, even the bird brains, that they have a concept of number. That would suggest that little if any reasoning is required to have the idea of number. Perception with opinion would suffice.

Interpretation (B) will respond that 47b4–7 is only laying out the possible beneficial consequences of vision *if* it is accompanied by reason, *phronēsis*. So Timaeus introduces the passage at 46e6 by saying of the contributory causes that they only produce good and beautiful results when accompanied by *phronēsis*. Earlier, when Timaeus referred to the simplest revolution of day and night as the most intelligible (*phronimōtatē*), he was also using a term that invokes the use of *phronēsis*. In other words, the point is that the

perception of night and day presents the simplest case for reason to figure out the numerical ratios; the point is not that these ratios are represented in perception itself. The difference between me recognizing the number one in the single revolution of a day and night and the mathematician observing the path of Venus as expressing a more complex numerical ratio would be one of degrees. It takes hardly any intellectual effort to represent a period of light followed by a period of darkness as one day. If even the dullest student (as *Epinomis* 978d put it, cf. ch. 5, p. 113) has a concept of number and time, then this shows not that vision as such provides them with numerical information, but that even they would be stimulated to think of the number one because the changes from night to day are so obvious.

Indeed, Interpretation (B) might find support in Timaeus' account of the mechanisms of perception. There is nothing in this account to suggest that perception is capable of conveying mathematical information. At 45c7–d3, Timaeus says that when the visual ray touches something or is touched by another thing then it conveys their motions through the body until they reach the soul. There is no indication, however, of the kinds of information that might be conveyed in those motions. In a later passage, 64b3–6, Timaeus explains in more detail how the affections reach the soul through body: 'when something that is naturally mobile is invaded by even a slight affection, it spreads all round, one particle passing on the same effect to another, until they reach the mind (*to phronimon*) and report the power of the agent'.[12] What is reported to the mind in perception is 'the power of the agent'. Two examples in near context illustrate what Timaeus means by this phrase. At 60a Timaeus says of honey that it is able to relax the passages around the mouth and by this power (*dunamis*) produces sweetness. Again at 66b he refers to substances which 'absorb, and are softened by, the warmth of the mouth, become fiery and in turn scorch that which heated them, mount upwards by virtue of their lightness to the senses in the head, cleaving whatever they encounter', adding that it is on account of these powers (*dunameis*) that they are called pungent. A *dunamis* seems here to be a power to produce physical affections (e.g. relaxing the passages of the mouth) which we associate with certain sensible qualities (e.g. sweetness). The implication of 64b3–6 seems therefore to be that when the physical affection (*pathos*) is conveyed through the body to the mind, then the power of the agent to produce this affection is registered by the mind.

[12] τὸ μὲν γὰρ κατὰ φύσιν εὐκίνητον, ὅταν καὶ βραχὺ πάθος εἰς αὐτὸ ἐμπίπτῃ, διαδίδωσιν κύκλῳ μόρια ἕτερα ἑτέροις ταὐτὸν ἀπεργαζόμενα, μέχριπερ ἂν ἐπὶ τὸ φρόνιμον ἐλθόντα ἐξαγγείλῃ τοῦ ποιήσαντος τὴν δύναμιν.

However, there is an ambiguity in this phrasing. For while Timaeus says that it is the *dunamis* of the agent that is reported to the mind it is surely the sweetness of the honey that I perceive rather than the honey's power to relax my oral passages.[13] In other words, it seems that the mode in which the *dunamis* is reported is the perceptible quality associated with the physical affection which the *dunamis* brings about rather than the *dunamis* itself.[14]

From the point of view of demarcating the contents of perception it is significant that Timaeus limits his account to the perception of sensible qualities or, as we saw, powers associated with sensible qualities. Apart from pleasure and pain, there is no attempt to account for wider contents of perception than those we would typically identify as the objects of the five senses. In the case of vision, that leaves us with an account of how we perceive different sorts of light and colour but no account of how, for example, mathematical concepts might be represented in vision. There is nothing in the account of the senses that we have looked at to suggest that perception itself can deliver any mathematical content. To infer from this that the senses *cannot* therefore deliver mathematical content can of course only be an argument from silence. Yet if Timaeus saw it as part of the teleology of perception that it provided us with at least some rudimentary mathematical concepts, it might be thought an important omission that he does not account in the mechanisms of perception for how such information might be represented in perception.

At this point Interpretation (A) might respond by referring to the role of *doxa*. Let it be granted that perception on its own is not conceptually rich enough to account for the contents of mathematical understanding. But what has crucially been left out of our considerations is the role of *doxa*. Perception with *doxa* is sufficient to provide mathematical content. We need reason in order to analyse and calculate this content, as Timaean astronomers. But everybody has the notion of time and number because everybody has *doxai* about what they perceive.

It is often difficult in Timaeus' account to determine the nature of *doxa*. Is it a distinct psychological faculty or is it a certain epistemological state? When he earmarks *doxa* with perception as dealing with matters of perception does he mean that there are two parts of the soul working together, the *doxastikon*, as one might call it in Aristotelian fashion, and the *aisthētikon*?

[13] This may be why Cornford, having previously translated *dunamis* as 'property', changes to 'quality' at 64b. In his commentary he says 'In perception, the active quality (*dunamis*) of the object is thus finally "reported" to the consciousness: we see a colour, hear a sound, and so on.'

[14] If so, an extensional view of perception seems implied. Similarly, you might be said to see light refracted at a certain wavelength when you see red.

The *doxastic* soul might, then, provide information over and above that of perception. But reason (either in the sense of *nous*, *dianoia* or some other rational faculty) would not be involved until we started doing astronomy proper?

It is doubtful if Timaeus ever treats *doxa* as a psychological faculty. At 51d7 the objects of *doxa* are simply referred to as 'all those things which we perceive through the body'. This may of course simply be a way of fixing the extension of the objects of *doxa* rather than a suggestion that the information about perceptible objects that *doxa* deals with is limited to that which comes through the body. Interpretation (A) might also take heart from the fact that *doxa* whilst concerned with perceptible objects is still produced by persuasion. For persuasion presumably presupposes the transmission of a considerable amount of information that goes beyond the *pathē* we considered in the mechanism passage. Yet the way the contrast between *doxa* and *nous* is drawn both in terms of their justificational status (one is *alogos*, the other has a true *logos*) and in terms of their different distributions amongst human beings who are in principle psychologically the same suggests that *doxa* here is an epistemological rather than a psychological notion. One suspects that even the fact that *doxa* is produced by persuasion is supposed to point to its shakiness rather than as a comment on the sort of information represented in *doxa*.

At least as far as the world soul is concerned *doxai* are described as the result of the entire soul grasping a perceptible object (37b6–c2), whilst *nous* and *epistēmē* result from its grasping what is *logistikon*. To be sure, Timaeus makes a distinction within the soul between the circle of the same and the circle of the different, as we saw in chapter 7. He puts the circle of the different in charge of communicating the perceptible to the entire soul, whilst he assigns the job of announcing the *logistikon* to the circle of the same. But the circles here have the role of announcing the character of the object to the entire soul, and the entire soul (cf. *pasan tēn psuchēn*, 37b7) seems to work together as a rational unity. In other words, *doxa* seems better characterized as the result of an essentially rational soul dealing with perceptible matters, i.e. as epistemological state rather than a distinctive psychological faculty. Interpretation (B) could retort, then, that whilst *doxa* presupposes a higher level of conceptualization than mere perception can provide the source of this information is still the rational soul. For there is, as far as we can tell, no specific *doxastic* faculty in the *Timaeus*.

These are still arguments from silence. However, Interpretation (B) can call on another argument to show that neither perception nor *doxa* is *needed*

to explain the provenance of our mathematical concepts. This argument is based on how Timaeus describes the composition of the soul before our embodiment. Our souls were originally made out of the same ingredients (if slightly less pure) as the world soul and structured according to the same mathematical proportions as the world soul. It is these proportions that we are now trying to grasp in astronomy. The ratios that we are trying to understand in astronomy are therefore fundamentally the same as the ratios according to which our own souls were structured. In the meantime, of course, embodiment has thrown those ratios into confusion. Timaeus figures the result of doing astronomy as the soul's return to its primary state and original nature.[15] Interpretation (B) might therefore point out that since the same mathematical information is part of the soul's own structure an account of perception that shows us how we obtain this information in this world is superfluous. What is required from an account of perception is therefore not so much showing how perception gives us mathematical information but rather how perception may allow the soul to access its own latent mathematical understanding, or at least how it does not interfere with the soul's efforts. This is why Timaeus represents the effects of learning as regressive (i.e. as a return) rather than as progressive (i.e. as an advance).

Given what I have called the regressive character of mathematical learning it might be tempting to go one step further and attribute to Timaeus some version of the theory of recollection, as for example Luc Brisson has.[16] What to make of such a suggestion depends greatly, of course, on what we take Plato's theory of recollection to be in the first place, which is very far from clear. Some would insist on adhering to the letter of what Plato writes, taking as essential to the theory the pre-existence of the soul and the existence of a time at which the soul actually learnt about the forms. Others (e.g. Vlastos (1994) 97) would argue that the key idea behind recollection is the belief that certain truths, concepts or logical principles are inherent in the soul at some level of potentiality and would downgrade the explanatory value of pre-existence and actual prenatal knowledge.

Timaeus tells us not just that our souls were composed in the same way as the world soul but also that our souls *actually* knew about the planetary motions before we were born. When our souls were created they were each assigned to a star and then shown the nature of the universe and the laws

[15] Cf. εἰς τὸ τῆς πρωτῆς καὶ ἀρίστης ἀφίκοιτο εἶδος ἕξεως, 42d1–2; κατὰ τὴν αρχαίαν φύσιν, 90d5.

[16] On the basis of *Timaeus* 64b3–6, Brisson (1974) 440 takes the role of the sensory affections to be that of stirring up recollection of the forms when they reach the *phronimon*. The *phronimon* conceptualizes the sense affections by relating them to a form.

that were fated for them (41e2). Since the souls' understanding of these motions in this life is described (as we saw) as a return to their original state (42c4–d2, cf. 44b4–7) it might seem that perception of the planets in this life simply helps us remember the state of *actual* cosmic knowledge that obtained before our birth.

However, Timaeus never suggests that it is *because* we already *actually* had knowledge before we were born that we are now able to acquire astronomical knowledge. Learning about the numbers of time in this life may lead us back to the same state we were in before we were born, but that does not mean that it is because we were once in that state that we are now able to be in such a state. We should not confuse *post hoc* with *propter hoc*. Timaeus says nothing about pre-natal knowledge playing any active role in the study of astronomy in the present life. So 'recollection' in a strict sense would be a misnomer. What does seem important is that the soul's original composition now gives it the potential for astronomical knowledge. Astronomy is the completion of our soul's rational potential. Timaeus' language (44b–c) suggests that astronomy is the teleological fulfilment of our soul's rational nature. He who neglects astronomy is maimed and returns to Hades incomplete. The point that the souls were shown the planetary motions at a time before they were embodied is less important in this connection. Indeed, the context in which the demiurge showed the souls the nature of the universe and the laws that are fated was not an explanation of how the souls can later regulate themselves through astronomy. Rather the context was one of explaining how the souls themselves, and not the demiurge, are to be held responsible for whatever suffering they bring upon themselves. The point is: you already knew the rules, so don't blame me, the demiurge. Interpretation (B) might well be consistent, then, with a weaker reading of recollection such as Vlastos'. However, there is no evidence that when Timaeus explains our ability to use perception in astronomy he assigns any explanatory value to the soul's actual knowledge of the universe before it was born.

Interpretation (A) has perhaps one last shot left in its locker. For if Interpretation (B) is right and sense-perception is needed only to trigger mathematical understanding but does not itself provide mathematical information, then why do we need very specific perceptual experiences (watching the sun, the moon, planets, and stars) in order to actualize our latent astronomical knowledge? Put differently, if perception is not important to astronomy because of the information it gives us why does it matter whether we look at the sun rather than at a falling stone or the dance of the

bumble-bee? Interpretation (B) may be able to respond to this objection by arguing that what happens when we see the changing patterns of day and night, light and darkness is that patterns of change are set up in the soul which it can conceptualize mathematically. Compare the case of listening to a clock ticking. There is nothing in the auditory input of tick-tock, tick-tock in itself that tells me the time. However, these changes, by their frequency and regularity, may make me think that a minute or an hour has passed. Here it is the frequency and regularity by which I am causally affected by the sounds that matters, rather than the information provided by the input as such. I might equally be able to tell the time by feeling the pulse on my wrist or seeing the light from a lighthouse as long as these affect me with a certain regularity. Similarly, Timaeus' point may be that the visual experience of the sun and the other planets provides the right pattern of causal stimuli to allow me to recognize the numbers of the planetary motions. This is not because the sight of the sun rising and setting as such teaches us about time, but because it will allow us to recognize a particular pattern in the way our souls are affected, given our latent understanding of the numbers of time. Indeed, Timaeus' demand that we use our hearing to listen to harmonious music suggests that sound and rhythm may have the same affect on the soul (47c6–e2).

I have presented the evidence on the relationship between perception and astronomical understanding in terms of an interpretative choice. Interpretation (B) has had the most airtime and I think on balance that it does account for more of the text than interpretation (A). The temptation to go for (A) lies largely in Timaeus' heavily teleological account of perception, but when we look at what perception itself delivers in terms of content there is, disappointingly perhaps, no compelling reason to construe its contribution to knowledge in epistemic terms.

To sum up, we have seen that there is a more complex relationship in natural philosophy between perception and thinking than was suggested by Cornford's claim that we would do better to shut our eyes and think. Perception on its own, it would seem, gives us the stimuli for astronomical inquiry but no more. The astronomer observes the spectacle of light and darkness that the planets present to him and attempts with his reason to calculate the mathematical regularities to which they conform. Such thinking might be aided by education but ultimately draws on the soul's own rational structure. Timaeus might then be described as a rationalist at heart with respect to astronomy. The intellect works from its own resources on the perceptual input, analysing and interpreting it through mathematical

computation. But this is not to undermine the crucial causal role perception plays in triggering this process, a point of which Timaeus' teleological language keeps reminding us. To invert Cornford, then, when it comes to astronomy, the message of the *Timaeus* is better described as 'to find reality you would do better to *open* your eyes and think'.[17]

[17] I am grateful to the audience at the Cambridge B Club, to whom a version of this chapter was orginally read, and to Dominic Scott and Frisbee Sheffield for helpful comments.

CHAPTER 9

Dialogue and dialectic

The *Timaeus-Critias*, like Plato's other works, is commonly referred to as a dialogue. Yet from 29d6 to the end, that is to say for about five-sixths of the text, the *Timaeus* takes the form of a monologue, and roughly the same holds for the *Critias*. There are other Platonic dialogues which contain long, uninterrupted speeches, for example, the *Apology* and the *Laws*. Yet there is, with the possible exception of the *Menexenus*, no other work that to such an extent is dominated by monologue.[1] What has happened to the dialogue form in the *Timaeus-Critias*? In what sense, if any, can we call this work a 'dialogue'? And if Plato has given up on the dialogue form in the *Timaeus-Critias*, how does this reflect on the sorts of inquiry that Timaeus and Critias are engaged in? We tend to think of Plato's method of philosophy as dialectical, at least in the minimal sense of involving questions and answers. Has Plato then changed his conception of philosophy in this work, and if so, why in this work?

DIALOGUE

One can talk about at least four kinds of dialogue in Plato, and no doubt there are more. There is the dialogue between the characters within the works. So, for example, Socrates discusses the immortality of the soul with Simmias and Cebes in the *Phaedo*. There is also the dialogue between the narrator of such conversations and his audience. So, in the *Phaedo*, Phaedo discusses with Echecrates the conversation of Socrates with Simmias and Cebes. Such framing dialogues can operate at several removes. Most notoriously, in the *Symposium* the conversation between Socrates and Diotima is related through five or six intermediaries. A further kind of dialogue may be the one that Plato establishes with his own characters. Plato represents his authorial voice through the characters.[2] So Socrates represents arguments

[1] Dialogue is substantially integrated in the *Apology* (cf. 19d–21a, 24a–28d, 29c–31c).
[2] Cf. Sedley (1995) 4–5.

and ideas to us that Plato must have thought important whether or not he himself believed in them. Related to all of these different kinds of dialogue is the one that Plato sets up with his readers. Plato gives us clues as to how one might respond (or not respond) to the arguments and ideas by the reactions of the characters within the dialogue.

The *Timaeus* is a dialogue in at least three of these senses. First of all, Plato establishes a dialogue with his readers. One example is the opening. Plato makes Socrates start by summarizing a conversation he had the day before in which he described a political system which sounds tantalizingly similar to the one Socrates developed in the *Republic*. Yet Socrates is clearly referring to a different conversation from the one reported in the *Republic*. The characters have changed and the dramatic dates of the two dialogues do not allow for the *Republic*'s conversation to have happened the day before that of the *Timaeus*.[3] Surely Plato wants us as readers to keep the *Republic* in mind and think about its relationship to the ideas contained in the *Timaeus*.

On the question of Plato's dialogue with his own characters, the choice of Timaeus and Critias rather than Socrates as the main speaker must be significant. Socrates claims to be inadequate to the task of properly praising the just citizens in warlike action (19c8–d2).[4] Part of the reason for this may be that Socrates, as presented in the *Apology* and the *Republic*, lacks the kind of practical political experience that is a requirement for representing the actions and speeches of good citizens. As far as the cosmology of Timaeus' speech goes, it may be that having made Socrates declare himself either uninterested in the study of 'the things in the sky' (*Apology* 19b–e) or incapable of it (*Phaedo* 99c–d), it was too much of a stretch to present Socrates in the *Timaeus* as an expert in astronomy.[5] It is possible, then, to see Plato as interacting with the Socrates character in the *Timaeus* in a way that is to certain extent constrained by other representations of Socrates.

As far as framing devices are concerned, there is a significant difference between the two speeches to which we are treated. Critias' speech, the story of ancient Atlantis, is presented as a copy of the story he heard from his grandfather who heard it from Solon, who in turn obtained it from the Egyptians, who had preserved it in written records of what they had once heard. In this way, the conversation we are presented with between

[3] Cf. Cornford (1937) 4–5.

[4] He addresses this observation to Critias and Hermocrates and not Timaeus, which perhaps suggests that Socrates is anticipating that Timaeus will make a different kind of contribution to the 'feast of speeches'.

[5] See, however, my comments in the Introduction, p. 3.

Critias, Socrates, Timaeus, and Hermocrates is the framing dialogue within which Critias represents the conversation that his grandfather had with him as a child. Timaeus' speech, on the other hand, is presented as if new.[6] Timaeus is speaking not because of something he has heard from others but as an expert in astronomy presenting his own account of the universe. His account opens: 'according to my opinion' (27d5). He signals that his speech is geared to the education of his particular audience (53b7–c3) and to the absence in the present circumstances of visual aids (40d2–3). There is a directness about Timaeus' speech which contrasts with the complex pedigree of Critias' speech. If it is by almost magical coincidence (*agathē tuchē*, Socrates calls it, 26e6) that Critias is in possession of a speech that fits the requirements of the occasion, Timaeus' account is appropriate because he makes it so.

There are, then, at least these three senses in which one can say that the *Timaeus* is a dialogue: there is a dialogue between author and reader (and after all which text is not?), there is a dialogue between author and character and there is a framing dialogue, at least in Socrates' report of the previous day's conversation. However, the kind of dialogue that I want to focus on in this chapter is the one between the characters within a work. Now it would clearly be wrong to say that the characters in the *Timaeus* do not talk to each other. Socrates, Timaeus, Critias, and Hermocrates have a conversation at the beginning of the work in which they plan the day's speeches. They seek agreement from each other before they start speaking and Socrates offers his approval of what he calls Timaeus' proem (29d4–6). Again at the end of Timaeus' speech Socrates declares that the audience has been well pleased. However, it is also true to say that from the proem to the end of his speech Timaeus' audience remains silent. Socrates declares from the outset that he intends to keep quiet (27a1) and the *theatron*, or 'house', as Socrates and Critias call it (108b4, 108d6), listens without interruption to Timaeus.

Silent audiences are not unusual in Platonic dialogues. In the *Protagoras* and the *Euthydemus*, for example, the interlocutors are surrounded by a coterie of listeners who make almost no verbal contribution to the proceedings. In two dialogues, the *Sophist* and the *Statesman*, even Socrates remains silent during the conversation between the Eleatic Stranger, Theaetetus, and the young Socrates. However, in these instances the audience is still listening to other people talking to each other, and not as in the *Timaeus* simply to one person holding forth.

[6] On the contrast, cf. Osborne (1996) 185–7.

The monologue form of the *Timaeus* is perhaps most surprising if we recall Socrates' objections to speechmaking in some of Plato's other works. In the *Protagoras*, Socrates says he is 'a forgetful sort of chap' who is unable to follow long rhetorical speeches. He can only engage with Protagoras if he is willing to answer briefly in a dialectical discussion (*dialegesthai* 335b–c). Again in the *Gorgias*, Socrates takes Polus to task for making long speeches and insists that Gorgias stick to the short question-and-answer format (*dialegesthai* 449b). In these dialogues, then, long speeches are associated with rhetoric and contrasted with the philosophical dialogue preferred by Socrates. Underlying Socrates' preference for dialogue seems to be the view that rhetorical speeches do not allow us properly to scrutinize and assess the truth of what is claimed. Given his hostility to extended speeches in these dialogues, why is the monologue form acceptable to Socrates in the *Timaeus*?

Let me consider first three different ways of explaining the monologue format. None of them, on its own, sufficiently explains the monologue form, though they may, individually or collectively, tell part of the story. The first explanation is that the speeches in the *Timaeus-Critias* are monologues because they are encomia. In Greek rhetoric, encomia are classified as display or epideictic speeches in which the speaker displays his rhetorical skill by going through a number of points in praise of his subject, e.g. noble birth, virtues, personal deeds, and deeds inspired in others (cf. ch. 2). Think, for example, of Gorgias' or Isocrates' *Encomium of Helen*. So when Socrates asks for an encomium of his ideal city in the *Timaeus* and when Critias and Timaeus agree to deliver one, we might think that it is implied that the speeches will be monologues. The reason why I think that this is not a sufficient answer lies in Socrates' speech in the *Symposium*. This speech is also offered as an encomium of *erōs*; nevertheless it takes the form first of a direct conversation between Socrates and Agathon and then of a reported conversation between Socrates and Diotima. Moreover, Socrates suggests that the other speeches have somehow failed to be sufficiently critical and focused on the truth about *erōs* because they have followed the encomium format. Since Socrates presents his encomium of *erōs* as a dialogue, pointing out that Socrates wants an encomium in the *Timaeus* is not enough to explain why the speeches are not dialogues.[7] Indeed, if Socrates wanted a

[7] Cf. Proclus, *in Tim.* 62.5–13: ἤδη γὰρ καὶ τῶν πρεσβυτέρων τινὲς εἰρήκασιν, ὅτι τὸ ἐγκωμιαστικὸν εἶδος ἁδρὸν ἐστι καὶ γαῦρον καὶ μεγαλοπρεπές, ὁ δὲ Σωκρατικὸς χαρακτὴρ τῶν λόγων ἰσχνὸς καὶ ἀκριβὴς καὶ διαλεκτικός. ἔχει δὴ οὖν ἀπ' ἐναντίας πρὸς ἐκεῖνον. διὸ καὶ ὁ Σωκράτης ἀποφεύγει τὸ ἐγκωμιάζειν, εἰδὼς τὴν παρ' ἑαυτῷ δύναμιν πρὸς ἃ πέφυκεν. Proclus responds that they are ignoring the long speech in the *Menexenus* as well as Socrates' grandiloquence (*megalophōnia*) in the *Phaedrus*.

standard rhetorical encomium then his choice of speakers would seem odd. If Socrates wanted a traditional encomium we would expect him to turn to a poet or sophist. But Socrates chooses Timaeus, Critias, and Hermocrates as the speakers exactly because they are philosophers and politicians and not poets or sophists. On this point the *Timaeus* contrasts also with the *Menexenus* where Aspasia's funeral oration follows closely the format of Pericles' famous speech (236a–b) and is supposed to meet the requirements of the Athenian Council Chamber (234a–b). In other words, not only is there no reason to think Socrates would necessarily want a conventional encomium of his ideal citizens, there is also reason to think that Socrates has selected his speakers for other reasons than their ability to deliver a conventional encomium.

Another possible explanation says that Timaeus' account is a monologue because it is a myth (*muthos*). Whenever Socrates or some other character in Plato presents *muthos* there is a change from dialogue to monologue. Think for example of Protagoras' myth in the eponymous dialogue or Socrates' myths at the end of the *Gorgias*, *Phaedo*, and *Republic*. Now whereas Timaeus occasionally, as we have seen, calls his account a *muthos*, Critias said that his account would be a *logos* and not a *muthos*. However, *Tim*. 27a2–b6 suggests that *all* the speeches are planned as monologues, not just Timaeus' speech but also those of Critias and Hermocrates. It seems therefore that there must be at least one reason why the speeches in the dialogue are monologues which is independent of whether the individual speaker presents his speech as *muthos* or *logos*.

A third kind of explanation takes its cue from an observation that is often made about the literary form of Plato's so-called 'late' dialogues. In dialogues such as the *Sophist* and the *Statesman* the respondents contribute less than in the so-called Socratic dialogues or in the middle-period works. As John Cooper puts it, 'in the late dialogues . . . the other speakers put up so little opposition and their comments introduce into the proceedings so little of the sort of fertile nuance that one finds in the other dialogues, that for long stretches there is little else that could claim the reader's attention at all'.[8] It is possible to see the *Timaeus-Critias* as an extreme case of this phenomenon. The submissive role of the interlocutors is taken to a point where they no longer speak at all. As Cooper continues, 'In fact, the substance of the *Timaeus* and *Critias* is contained in uninterrupted discourses that the main speaker delivers to the others present, with no indication even at the end of how they received it: there is no return to the conversational context in which it was originally introduced.' It might be an exaggeration to say

[8] Cooper (1997) xxi.

that there is no indication of how the speakers received the speech. For, as mentioned, Socrates expresses his approval of Timaeus' speech at *Critias* 108b and he gives the thumbs-up to Critias' speech on the basis of the fairly lengthy synopsis at *Timaeus* 26e. Nevertheless, Cooper is clearly right in the sense that there is no indication as to how the listeners engaged with the particular contents of Timaeus' and Critias' speech. There is no questioning, no request for clarification, no criticism, no reformulation of any of the points made by the speakers. But the absence of such responses marks a significant difference. Plato's other late dialogues seem in an important sense still to be dialogues. For however dogmatic and however loquacious the main speaker may be, the conversation will not proceed until the respondent has understood and agreed to his statements.[9] There is no equivalent to this in the *Timaeus-Critias*. During his account Timaeus never seeks his audience's assent and never gets it. It might, then, be true to say that the literary form of the *Timaeus-Critias* expresses a tendency in the later works towards a more didactic mode of communication in which the dialogue, as we know it from the 'earlier' works, plays a reduced role. But this tendency still does not fully explain the disappearance of the dialogue form from the *Timaeus-Critias*.

The full answer to our question lies, therefore, neither in saying that the speeches are encomia, nor in saying that they are myths, nor yet in blurring the distinction between dialogue and monologue. Instead I shall argue that there is something about the subject matter of the *Timaeus-Critias* that makes the monologue form appropriate.

Let us start by noticing how the speakers present themselves. They say that they are like hosts treating Socrates to a feast. Yesterday Socrates was the host and entertained, today he is the guest of the three others. One might have thought that being a guest would be compatible with speaking. In Plato's and Xenophon's *Symposia* the guests take turns to speak. So at these feasts the duties of the host do not amount to doing all the talking whilst the guests sit silent. Indeed, it could be argued that the communality of the symposium relies on everybody speaking. In the *Timaeus*, however, the metaphor of the feast of words seems to refer not so much to the practice of the guests entertaining each other with speeches as to the idea that the host would provide food, drink, and other luxuries for his guests. Such provision would, at least at more prestigious parties,[10] be the sole responsibility of the host. It would be part of the reciprocal duties of *xenia* to provide the

[9] On the dialogue form in later Plato, cf. M. Frede (1996) and Rowe (1996).

[10] There is also evidence of the bring-your-own-bottle party (the *symbolikos* as contrasted with the *asymbolos*) from the early third century; cf. Davidson (1998) 68 (with references).

same hospitality on a later occasion. Having yesterday provided a feast of words, Socrates has now turned up dressed to the nines (*kekosmenos*, 20c2) ready to be treated in kind. This is the point of the emphatic language of reciprocity that peppers the opening conversation (*antaphestian*, 17b4; *antapodōsein*, 20c1; *antakouein*, 27a1; *antapolēpsesthai*, 27b7).

Dialogue is one model of reciprocity. By taking turns to question and answer participants participate in a rule-governed form of exchange in which both parties fulfil their duties to each other. However, this is not the model Plato chooses in the *Timaeus*. Here the speakers are working to a plan according to which the conclusions of one speech provide the premises for the next. Thematically, therefore, the speeches dovetail rather than overlap. Socrates asks for the *logos* which follows his own. Indeed, he anticipated already before he began his speech yesterday that his audience would deliver 'the following speech' (*ton hexēs logon*, 20b3). Today's speeches will be given in accordance with a plan (*diathesis*, 27a2). Timaeus will begin by speaking about the creation of the cosmos down to and including the nature of man. Critias will then *take over* (*dedegmenon*, 27a7) men as created according to Timaeus' account and educated in accordance with Socrates' account, and put them into military action. At the beginning of the *Critias*, Timaeus accordingly hands over 'the following speech' (106b7) to Critias. The idea of a plan is implied already by the opening exchange between Socrates and Timaeus:

> Soc. 'One, two, three, but where is the fourth of the persons, my friend Timaeus, who were guests yesterday and are entertaining today?' Tim. 'He is indisposed, Socrates. For he would not willingly be absent from this gathering.' Soc. 'Is it then the job of you and the others here also to fulfil the part of the one who is absent?' Tim. 'Absolutely, and if we are able to, we certainly will not leave anything out.' (*Tim*. 17a1–b2)

So Socrates and Timaeus are already assuming that today's hosts have a plan. It is as if the four had yesterday divided the preparation of the meal up into four parts, Timaeus preparing the hors-d' œuvres, Critias the starter, Hermocrates the main course and the anonymous fourth the pudding, but now the three find that they have to make the pudding as well as their own contributions.[11] Each speaker has responsibility for a separate part of the proceedings. Once a speaker has spoken, therefore, he sits back in silence. So having entertained his audience yesterday, Socrates declares that he will

[11] Notice that this seems to be true also of speeches delivered yesterday, which, despite the reports of what 'we said', are attributed to Socrates. 17c1–2: τῶν ὑπ' ἐμοῦ ῥηθέντων λόγων; 20b1–2: διὸ καὶ χθὲς ἐγὼ διανοούμενος, ὑμῶν δεομένων τὰ περὶ τῆς πολιτείας διελθεῖν, προθύμως ἐχαριζόμην, . . .

now listen in silence.[12] We are a long way away from the to-and-fro of conversation. In the *Timaeus*, the reciprocity of continuous dialogue has been replaced by that of serial monologue.

The division of labour matches the unique expertise of the individual speakers. Having presented his account of the citizens of the ideal city, Socrates declares himself incapable of properly describing their actions in battle. His three friends, however, are the only living people able to do so. Critias, as it turns out, is able to perform the task because he is in sole possession of the story of Athens' war with Atlantis. As Socrates says, if you dismissed the Atlantis story where else would you find an account to do the job? (26e5–6). Socrates describes Timaeus as having reached the apex of all philosophy. This compliment has particular force coming as it does after the *Republic*'s account of the rigours of philosophical training. Compared with the other speakers Timaeus is particularly knowledgeable about astronomy and he is therefore given the job of explaining the creation of the cosmos. Of Hermocrates' contribution and expertise we are told nothing. It is reasonable to connect his presence in the dialogue with the role of the historical Hermocrates, the general who defeated Athens' expedition to Sicily during the Peloponnesian War, an expedition that is analogous to the attack of Atlantis on ancient Athens (cf. ch. 1 p. 11). So he may have been chosen for his unique military achievements. Each of the speakers seems then to have special credentials to speak on his topic.

The presentation of the speakers as experts reinforces the impression that the speeches of the *Timaeus-Critias* are *didactic*. Timaeus prays that 'I may *demonstrate* (*an . . . endeixaimēn*) the subject matters in the way in which you may *learn* (*mathoit'*) as easily as possible, and in the way that best represents what I have in mind' (27d2–4). Again at 53c1–3 Timaeus avows that his audience will be able to follow the account that he will show (*dēloun*) them because they know the paths through which it is necessary to demonstrate (*endeiknusthai*) what is said. The Greek verbs for 'to show' or 'to demonstrate' or 'to display' recur on a number of occasions to describe what Timaeus is doing,[13] whilst verbs meaning 'to listen', 'to follow', 'to understand' or 'to receive or accept'[14] are used to describe the role of the audience.[15]

[12] At the end of his speech, Timaeus talks of a road or journey which he feels relieved to have completed (106a1–3). The indication is that no further contribution is to be expected from a speaker once he has done his bit.

[13] ἐπιδείκνυμι: 47e4, 61c4; δηλόω: 48e4, 62c4; *Crit.* 107a7 διδάξαι.

[14] δέχομαι: 20c3, 27a7, 50b5; ἀποδέχομαι: 29d2,4, 5 and 30a1 (twice).

[15] The didactic character of the speeches does not mean that the audience is passive or unimportant. For they are described as judges (*kritai*) and compared, as we saw, to a theatre audience who in

Now it is important to remember that a didactic style is not incompatible with the question-and-answer format. As Aristotle's *Topics* shows,[16] didactic dialectic is a recognized form of demonstration in fourth-century philosophy. At the beginning of Plato's *Sophist* (217c–d) didactic dialectic is presented as an alternative to the display speech. Socrates gives the Eleatic Stranger the following choice:

> When you want to explain (*endeixasthai*) something to somebody, do you usually prefer to explain it by yourself in a long speech, or to do it with questions? That is the way Parmenides did it one time, when he was very old and I was young. He used questions to go through some very fine arguments (*diexionti logous pankalous*). (transl. N.White with alterations)

The Stranger chooses the Q&A format partly because it is the more polite and friendly way:

> As long as I'm here with you for the first time, Socrates, I'd be embarrassed not to make our meeting a conversational give-and-take, but instead to stretch things out and give a long continuous speech by myself, even if it is also directed at another person, as if I were delivering a demonstrative speech (*epideixis*). (transl. White with alterations)

Now presumably what the Stranger means here is that the reciprocity of conversation is more appropriate than monologue where *xenia* has not already been established. That is to say, it is unfriendly (*axenon* 217e6) to deliver a monologue where it cannot be seen as a response to a previous offering. On this point the relationship between the Eleatic Stranger and Socrates neatly contrasts with that between Socrates and his host in the Timaeus. For there the hosts have established *xenia* and Timaeus and the others are responding to Socrates' speech the previous day. But the Stranger gives another reason for preferring the conversational form. He says that it is easier to conduct a dialogue than a monologue when the answerer is obliging. Now if we apply this point to the *Timaeus*, it is puzzling that the speakers do not opt for the dialogue form. For there is no indication that the audience would put up a struggle if Timaeus had chosen to demonstrate the nature of the universe through questions and answers. Indeed, Socrates lavishes praise both on his prologue and on the finished speech. So why did Timaeus not choose the easier dialogue form over the more difficult monologue?

ancient Athens would vote for the best dramatist. All it means is that the audience will not voice their opinions until the speech is complete.

[16] Cf. also *Sophistic Refutations* 2.

Before attempting to answer this question let me make some observations about the structure of Timaeus' speech. Just as the four speeches as a whole are carefully planned, so is Timaeus' speech. Timaeus' speech, like that of Critias, has been prepared in advance. Timaeus knows at the outset the road he has to travel. It is going to be a long one. The prayer he offers to the gods in advance of the journey warns us of the magnitude of the task. Anybody with any sense prays to the god before undertaking any task big or small, but we who are going to produce accounts of the universe (*to pan*, literally 'the all') must certainly do so (27c1–7).[17] The journey will take us from the coming into being of the cosmos down to and including the nature of man. The starting-point and the end of this account (cf. *teleutan*, 27a6), the nature of man, are already set from the start. But so, it seems, are the stages through which Timaeus has to travel to get from the start to the finish. First comes what Socrates calls the proem in the form of a set of introductory distinctions (cf. *prōton diaireteon tode*, 27d5). Socrates then asks him to complete the composition (the *nomos*, a musical analogy) in order (*ephexēs*).

Timaeus complies by presenting a narrative organized into the following main sections and subsections. 29d7–31b3 describes the aim of the divine craftsman, the construction of a single, complete visible likeness of the intelligible paradigmatic animal. 31b4–34b9 explains the composition, shape and motion of the world body. 34b10–40d5 accounts for the world soul and the motions it gives rise to in the planets, which are immortal visible gods. 40d6–41a6 describes the so-called invisible gods (Zeus, Hera, etc.). 41a7–d3 introduces the creation of mortal living beings, man and through him the other animals. 41d4–47e2 shows the construction of the human soul and body. 47e3 marks a break: a third principle of explanation is introduced, space, in order to explain the composition and motions of body. The account of space takes us up to 53c4, after which we get an account first of the mathematical composition of the simple bodies and their motions (53c5–58c3) and the kinds and compounds of the simple bodies (58c4–61c2). 61c3–65b3 takes us through the attributes of these bodies (*pathēmata*) as they affect the whole human body. These, the objects of touch, are in order: hot and cold, hard and soft, heavy and light, smooth and rough, pleasurable and painful. Next (65b4–68d7) follow accounts of attributes that affect particular parts of the human body: those that affect, first, the tongue, tangy, bitter, pungent, acid, sweet (65b4–66c7); second, the nose (66d1–67a6);

[17] The Greek puns on *pan* in *epi pantos hormē* where it has the force of 'anything' and *tous peri tou pantos poieisthai* where it means 'the all', i.e. everything, the universe.

third, the ear, high-pitched, rough, loud, and soft (67a7–c3); and, fourth, the eye, transparent, white, black, bright, brilliant, and the different mixed colours (67c4–68d7). Having explained what Timaeus calls the building materials of his account, he now proceeds (68d8–81e5) to account for the parts of the human body and their functions in relation to the soul. This takes us through, in order, the heart, the lungs, the stomach, the liver, the spleen, the flesh and the bones and their joints, the skin, the digestive and respiratory system, and the blood. These in turn allow Timaeus to account for death and diseases (81e6–87b9). First come the diseases of the body, which are divided into three classes with further subclasses (81e6–86a8), secondly those of the soul (86b1–87b9) which are divided into two classes. Next comes a discussion of the right therapy and prevention of the diseases of the body and the soul (87c1–90d7). Finally (90e1–92c9), Timaeus completes his account by explaining (against the background of the diseases of the soul) the formation of woman and the other animals.

The overall structure is provided (a) by the distinction between body and soul and (b) by the division between immortal and mortal animals, which then allows for further subdivision. Particularly in the account of human nature, Timaeus seems to be working according to a taxonomy. The parts of the soul having been divided, he systematically goes through the parts of the body and their functions, adding a taxonomy of diseases and matching therapies. The systematizing is not without its hiccups as we shall see. But what is most noticeable is the way in which Timaeus seeks to control his material in accordance with his plan.

Socrates asked Timaeus to complete his account in order (*ephexēs*), and order is the key word for the way in which Timaeus presents his material. He flags the move from section to section by means of phrases like 'this being the case it is necessary to say the things that come next in order (*ephexēs*) to these' (30c2); 'let this be the end of what has been said about . . .' (40d3–5); 'Now after this (*meta touto*) setting out in this way let us go through the likelihoods that come next (*ta hexēs eikota*) in the following way' (59d2–3), 'it is necessary to pursue what comes after this (*to hexēs toutoisin*) in the same way' (72e1).[18] These 'links' underline that Timaeus is proceeding through points in order, as if he was ticking off items on a list.

Why is Timaeus so concerned with the orderliness of his speech? The reason, I think, is that he is trying to make his speech as similar as possible to its subject matter, the ordered cosmos. Timaeus wants to make his account

[18] Cf. also 61d4–5: ἵνα οὖν ἑξῆς τὰ παθήματα λέγεται τοῖς γένεσιν, ἔστω πρότερα ἡμῖν τὰ περὶ σῶμα καὶ ψυχὴν ὄντα.

akin to its subject matter. We saw this (cf. ch. 3, p. 50) first of all in the crucial methodological passage at 29b4–c2:

> an account of that which is abiding and stable and discoverable by the aid of reason will itself be abiding and unchangeable (so far as it is possible and it lies in the nature of an account to be incontrovertible and irrefutable, there must be no falling short of that); while an account of what is made in the image of that other, but is only a likeness, will itself be but likely. (Transl. Cornford with alterations)

According to this passage, kinship is the goal that we should work for when we give an account of anything. If we are interpreting eternal beings we should aim to produce an account that is abiding and unchangeable, like those beings themselves. When we give an account of the cosmos, which is a likeness (*eikōn*) of the eternal beings, we should try to make it likely (*eikōs*).

The idea that an account should be akin to what it is *of* also has implications for the literary form of the account. I will try to show this by making some observations about the concluding paragraph of the *Timaeus*. These observations will allow us to show the close connection between the literary form of Timaeus' account and its subject matter, the cosmos.

Here is how the *Timaeus* ends:

> And so let us say that our account of the universe has found its end (*telos*). This cosmos has received and has been filled up with (*sumplērōtheis*) mortal and immortal animals, a visible animal containing visible ones, a perceptible god, which is a likeness of the intelligible animal, as the greatest, best, most beautiful, and most complete this universe has come into being, single and unique. (*Tim.* 92c4–9)[19]

This conclusion responds, by way of ring composition,[20] to a passage at the beginning of Timaeus' account (30c2–31b3):

> When our maker made our world, what living thing did he make it resemble? Let us not stoop to think that it was any of those that have the natural character of a part, for nothing that is a likeness of anything incomplete (*atelei*) could ever turn out beautiful. Rather, let us lay it down that the universe resembles more closely than anything else that Living Thing of which all other living things are parts, both individually and by kinds. For that Living Thing comprehends within itself all intelligible living things, just as our world is made up of us and all the other visible creatures. Since the god wanted nothing more than to make the world

[19] Καὶ δὴ καὶ τέλος περὶ τοῦ παντὸς νῦν ἤδη τὸν λόγον ἡμῖν φῶμεν ἔχειν· θνητὰ γὰρ καὶ ἀθάνατα ζῷα λαβὼν καὶ συμπληρωθεὶς ὅδε ὁ κόσμος οὕτω, ζῷον ὁρατὸν τὰ ὁρατὰ περιέχον, εἰκὼν τοῦ νοητοῦ θεός αἰσθητός, μέγιστος καὶ ἄριστος κάλλιστός τε καὶ τελεώτατος γέγονεν εἷς οὐρανὸς ὅδε μονογενὴς ὤν.

[20] As noted by Archer-Hind (1888) 345: 'Plato doubtless designs by thus echoing his former language to assure us that the promise made in the beginning has been fulfilled . . .'

like the most beautiful of the intelligible things, complete (*teleōi*) in every way, he made it a single visible thing, which contains within itself all the living things whose nature it is to share its kind . . . In order that this living thing should be like the complete (*pantelei*) Living Thing in respect of uniqueness, the Maker made neither two, nor yet an infinite number of worlds. On the contrary, our universe came to be as the one and only thing of its kind (*heis hode monogenēs ouranos*), is so now and will continue to be so in the future. (Zeyl transl.)

In this earlier passage Timaeus set out the aims of the demiurge in creating the universe. The most fundamental ambition of the divine craftsman was to make the cosmos as good and as beautiful as possible (cf. 30a). That is why he first of all set about making the cosmos complete (*teleos*). 'For nothing which is like an incomplete thing is beautiful' (30c5). We are now told in the conclusion that the universe has been created as the most complete (*teleōtatos*). So the mission is complete. However, we are also told that the account has found its *telos*. The connection between this claim about the completion of the account and the claim about the completeness of the cosmos seems straightforward: the account of the cosmos is complete because it has demonstrated the completeness of the cosmos. As the demiurge has finalized his creation, Timaeus' composition has therefore also reached its end, its *telos*.

Second, notice the term 'filled up with'. What makes the cosmos complete is that it is filled up with all the different forms of animal which were contained in the divine craftsman's model. The cosmos has been shown to contain all the kinds contained by the formal paradigm. We have therefore achieved the aim that Timaeus defined for the divine craftsman at the beginning of his account:

. . . since the god wanted nothing more than to make the world like the best of the intelligible things, complete in every way, he made it a single visible living thing, which contains within itself all the living things whose nature it is to share its kind. (*Tim.* 30d1–31a1)

We have come full circle both in the sense of presenting a cosmos which contains all the necessary living beings and in the sense that a speech about the cosmos has circumscribed all the necessary items to be included. The terminology of 'filling' is therefore to be seen in the context of establishing both the completeness of the cosmos *and* Timaeus' account of the cosmos. At the beginning of the work Socrates asked: 'isn't it the job of you and these people here to fill up (*anaplēroun*) the part of the absent one?' The completeness that Socrates wants is realized in exemplary fashion by

Timaeus' account. It remains to be seen if the other speakers will also fulfil their duties.

Thirdly, notice the final words of the paragraph: 'this universe has come into being, single and unique'. The repetition of 'one' (*heis*) and 'single' (*monogenēs*) serves to emphasize the unity of the created world. Again on this point the conclusion echoes the passage at 31a–b: 'so in order that this animal should be like the complete (*panteles*) animal in respect of uniqueness, the maker made neither two, nor yet an infinite number of *kosmoi*, but this single (*monogenēs*) universe that has come to be is and will remain one (*heis*)'. The verbal correspondence is strong and shows again the completion of the divine craftsman's and Timaeus' projects. Notice also that the last words echo the first word, *heis*, of the entire work. Last words, like first words, are often significant in Plato.[21] Here the emphatic repetition of 'one' declares the completion of the composition. Timaeus' account has come full circle. As we might say, echoing Socrates' first words, 'one down, two and three to go'.

The cosmos has been shown to be both complete and unique. Because making the universe complete and unique was a way of making it good and beautiful the universe has also been shown to be, as Timaeus puts it, 'most good and beautiful' (*aristos kallistos te*, 92c8). However, as we have seen, the conclusion also demonstrates the completeness of Timaeus' account. Timaeus has fashioned his account in a manner that reflects the nature of the cosmos. Timaeus, indeed, draws an explicit parallel between himself as a creator of the cosmos in words and the divine craftsman as a creator of the cosmos in deeds (*Crit.* 106a3–4).[22] Timaeus' account is a cosmos in words which represents the cosmos in deeds. The cosmos in words is complete to the extent that it represents the cosmos in deeds as complete. Timaeus has done in words what the demiurge did in reality when he made the world. He has made a likeness in words that corresponds as much as possible to the likeness in reality that the demiurge once fashioned.

The point can be put differently in terms of the key notion of 'teleology'. What we have seen is that teleology takes two different forms in Timaeus' account. Primarily, it is the principle according to which we explain how the divine craftsman created the world. He made the cosmos with the goal that it should be as beautiful as possible. But teleology for Timaeus is also a principle that directs the composition of his speech. Timaeus creates

[21] Cf. Burnyeat (1997a) 17–19.

[22] Notice also Timaeus' comparison of himself to the builder (*tektōn*) of the *logos* (69a6–7), where the cognate verb 'to build' (*tektainomai*) is repeatedly used of the demiurge or demiurges (28c6, 33b1, 36e1, 70e3, 91a2).

his account of the cosmos so that it should have the same qualities of completeness and beauty as the cosmos. For by doing so he makes an account that is fitting and appropriate to its subject matter.[23]

I have argued that Timaeus' conclusion represents the completion both of the demiurge's creation in deeds and of Timaeus' composition in words. The idea of teleology as a principle of literary composition comes across most clearly, perhaps, if we introduce the idea that the world is an animal. In his conclusion, as we saw, Timaeus said that the cosmos has come into being as a visible animal containing within itself all the different species of animal. However, Timaeus indicates that his own speech about this animal is also somehow like an animal. From the *Phaedrus* we are familiar with the idea that a speech should be like an animal with a head, a torso and legs: 'Every speech (*logos*) must be constructed like an animal (*zōion*), having its own body, so that it is neither without head not without legs but has a middle and extremities, composed as fitting (*preponta*) to each other and to the whole' (264c). In the *Timaeus* this idea is applied with particular pertinence since the subject matter of Timaeus' speech is itself an animal. By being itself like an animal the speech shows itself as the appropriate account of the cosmos. But if the speech is going be like a proper animal it has to have a certain form. A proper speech cannot be a random collection of parts, like Empedocles' man-headed ox-progeny.[24] Timaeus therefore seeks to maintain order and proportionality between the different parts of his speech. The most explicit example comes at 69a–b:

> let us briefly (*dia bracheōn*) return to the beginning and quickly travel to the same point from which we arrived here, and let us now try to place a final head (*teleutēn kephalēn tē*) on our story, one that fits with what we said up till now.

The image of an 'end and a head' (*teleutēn kephalēn te*) beautifully places the emphasis on completeness within the general image of the speech as an animal. The requirement that this head should also be harmonious (*harmottousan*) with the preceding account underlines the concern with proportionality of speech, again in line with the image of a proportionate animal. Now proportionality matters to Timaeus because it is the prime expression of beauty. It is by imposing regular geometrical shapes and ratios on the world that the divine craftsman makes it beautiful. 'The beautiful

[23] The abundance of *telos* words in the *Timaeus* works so as to reinforce the connection: τελέως: 27b7; τέλεος: 30d2, 32d1 (twice), 33b6, 34b2, 39d4, 39e1, 41c1, 92c8, cf. *Crit.* 106b5; τελευτᾶν: 27a6, 73a1; τέλος: 40d5, 90d5 with 90e3, 92c4; τελευτή: 69b1.

[24] Cf. Aristotle, *Phys.* 198b32.

is not without proportion' Timaeus says (87c5: *to de kalon ouk ametron*).[25] Timaeus thus ascribes great importance to proportionality both in the cosmic animal as a whole and in the animals within it. Given Timaeus' parallel between the cosmos in words and the cosmos in deeds, it is therefore not surprising that proportionality also works as a guide to the composition of his speech.

Proportionality of speech is expressed both in the relative size of the parts of the speech and in the order in which they come. So having started his account with the composition of the world body, Timaeus checks himself at 34b10–35a1. Since the soul was created before the body and is its ruler, we should have started our account with the soul and not the body. Again at 87c1 Timaeus tells us that good things have more of a claim to be the subject of our speech than bad things and therefore we should turn from discussing diseases to the proper care of health. In both instances Timaeus shows his concern with keeping his account proportionate with the relative importance and value of his subject matter. A proportionate account of the cosmos itself instantiates the order and relative importance of the parts of the cosmos.

But at 69a–b, and throughout his account, Timaeus is also concerned with maintaining the right length of exposition. So he rules, at 90e1–6, that

> we should go on briefly (*dia bracheōn*) to mention the way in which the other animals have come into being, which there is no necessity to prolong (*mēkuein*). For in this way somebody might seem more proportionate (*emmetroteros*) with himself in relation to speeches on these subjects.[26]

It is this concern with the proportionality of his account that leads Timaeus to suppress or mute alternative accounts and objections. Here are four other examples of Timaeus dealing with the possibility of a prolonged discussion. At 51c–d he imposes control on the length of the discussion of the existence of Forms as follows:

> Now we certainly will not do justice to the question before us if we dismiss it, leaving it undecided and unadjudicated, and just insist that such things exist, but neither must we append a further lengthy digression (*mēkos*) to a discourse

[25] Applying this principle to animals he says that 'therefore we must say that the animal that is going to be beautiful must be well-proportioned (*summetros*)' (87c). The most important proportion for an animal to maintain is that between its soul and its body: 'Imagine a body which lacks proportion (*ametron*) with itself because its legs are too long or something else is too big. It is not only ugly but also causes itself no end of troubles . . . That is how we should think of the combination of soul and body which we call an animal' (87e1–6). The passage was discussed in chapter 7 p. 156.

[26] Cf. also *dia brachutatōn*, 89e6.

already quite long (*mēkei*). If, however, a great (*megas*) definition (or 'limit', Greek *horos*) defined briefly (*dia bracheōn*) were to appear, this would be most timely (*egkairiōtaton*). (Zeyl transl.)

Previously, at 38d6–e2, he cut his discussion of the positions of the planets short by saying that

if someone were going explain all of these, the account, though beside the main subject (*ōn parergos*), would be a larger task (*pleon ergon*) than that for the sake of which it was given. Perhaps these things may get the treatment they deserve later at our leisure.

At 54a5–b2 Timaeus is discussing the question of which triangles we should posit as the most fundamental for the construction of the simple bodies:

For ourselves we postulate as the best of these many triangles one kind, passing over all the rest. The reason is too long a story; but if anyone should refute it showing that it is not so, the prize is his with all good will.[27]

Again at 57d7–e1 Timaeus mentions the grave problems for his subsequent account (*tōi katopisthen logōi*) that would arise if somebody did not agree about the nature of motion and rest. Timaeus' comments highlight where a dialectical opponent might, as it were, dig in and provoke an extended discussion.

I take Timaeus' concern with the proper order and size of the parts of his speech to be an expression of what I have called teleology as a principle of literary composition. Timaeus goes through the parts of the cosmos in order, trying to represent the order of the cosmos through his speech. It is from the point of view of this principle that I would explain the fact that his speech, and derivatively that of Critias, are cast as monologues rather than dialogues. By presenting his account in monologue Timaeus ensures the proportionality and completeness and hence the beauty of his speech. Where Timaeus excludes other voices it is at least in part because he cannot provide answers to them while maintaining the proportionality of his account. Answering objections or providing justifications threatens to prolong his speech (*mēkunein*) in a way that adds disproportionate length (*mēkos*) to a part of his speech. The animal analogy would be making the legs too long for the torso. It would make the animal ugly.

Why do beauty, proportionality and completeness matter so much in this work? The answer I believe lies in the subject matter. Failure to complete this account in a proportionate manner would imply that the account

[27] Reading μή with Hermann and Cornford.

was, in a certain sense, not an account of the cosmos at all. Any gaps or disproportionalities would mean that the account did not as an account represent the cosmos as the well-ordered whole that the demiurge set out to create. Of all subject matters the cosmos is one that requires a complete and proportionate account. Gaps and disproportionalities would represent a crucial lack of fit between account and subject matter. The account would no longer be akin to (*suggenēs*) its subject matter. It is for this reason that Timaeus' account requires the highest level of narrative control, that of the monologue.[28]

I have argued that the use of the monologue form in the *Timaeus* should be understood in relation to a principle of teleological composition, a principle according to which beauty, proportionality, and completeness should be represented in the account to the greatest extent possible. Now if beauty is the goal of Timaeus' composition it also follows in an important sense that the account can only be assessed as a whole. For beauty is an attribute of the whole. You do not judge the beauty of the animal by the length of its legs, but by the length of its legs in relation to the size of the rest of the body. Similarly, the beauty of Timaeus' account can only properly be assessed when we have heard it in its entirety. Interruptions, objections and requests for clarification threaten not only to disrupt the proportionality of the account, as we saw. They are also in an important sense inappropriate, since the account can only be judged as a whole as a cosmos in words. The question-and-answer format as a way of continuous assessment, scrutiny, or clarification is inappropriate to an account that can only be assessed as a complete whole. To question, for example, why the simple bodies should be made of other triangles than the ones Timaeus chooses when we have not yet seen the uses that these triangles will be put to is to miss the point that Timaeus' account presents a holistic piece of reasoning, a work whose beauty lies in its overall order, design, and fit. As listeners to Timaeus' account we need to make a judgment of the *complete* work. Only when we have taken on board the whole account can we ask if any of the parts could have been better worked out in relation to the whole.

This point brings me back to Socrates' request at 19b, with which I began in chapter 1:

[28] In maintaining compositional control Timaeus' monologue is again a mirror of the demiurge's actions. The demiurge does not discuss his creation with the lesser gods, who imitate his actions at his bidding. Notice the similarity between Timaeus' prayer at 27d and the demiurge's address to the lesser gods: νῦν οὖν ὃ λέγω πρὸς ὑμᾶς ἐνδεικνύμενος, μάθετε (41b6–7). Timaeus stands to the words of his account the way the demiurge stands to his creation.

Suppose, for instance, that on seeing beautiful creatures, whether works of painting (*graphē*) or actually alive but in repose, a man should be moved with desire to behold them in motion and vigorously engaged in some such exercise as seemed suitable to their bodies; well, that is the very feeling I have regarding the city we have described.

Socrates casts himself in the role of the spectator of a beautiful animal. But, as we know from Timaeus' speech, the beauty of an animal is to be judged by the proportionality of the whole. Timaeus' speech, then, like the animal it interprets, is only to be judged once it is complete. In phrasing his request, Socrates refers to his desire to see the animals move and again to his desire to hear the account of these motions by using the aorist (*theasasthai*, *akousaim' an*). The aorists indicate a single complete act of seeing or hearing, and they signal, I suspect, Socrates' intention to judge the account as a single completed whole rather than to judge it as it develops. It is in line with this intention that Socrates delivers his verdict only once Timaeus has finished his account. Like the spectators (*to theatron*) of a play, he has not judged the beauty of the play until the end of the final scene.

Timaeus completes his account, but not without difficulty. The circle has not been drawn neatly. At crucial points Timaeus has to restart his account or correct an earlier inaccuracy. On the first occasion (34b10–35a1), as we saw, Timaeus implies that it is proper to explain the world soul before its body because the soul is prior and senior to the body. The explanation he offers for why he discussed the body first is that 'by somehow participating to a great extent in the accidental and random we also speak in this way' (34c2–4).[29] Those turns at which Timaeus fails to observe the proper order of speech seem to illustrate the point made within his speech that good order by no means reigns without exception in the cosmos. Indeed, as we saw in chapter 7, eliminating the disorder that our embodiment brings about is the task that lies before us as human beings. The lapses of good order within Timaeus' speech are important reminders of the difficulty of this task. The demiurge sought to establish good order in the universe to the extent that it was possible. But there are limits to teleology in the cosmos. Similarly, there are limits to the good order of Timaeus' speech imposed on us by the limitations of our human nature. These limits are demonstrated where Timaeus needs to revise his account in order to complete it.

Where does this leave Critias' account? I said at the beginning that any account of the monologue form of Timaeus' speech had in principle to

[29] On the second occasion (48e), Timaeus tells us that he thought two principles were going to be sufficient but the *logos* now forces him to introduce a third. The future *hexein* shows that Timaeus is correcting himself: he was not right in his previous expectations about how the *logos* would go.

be applicable also to the other speeches. Critias' account is part of the same general project as Timaeus': to show good human beings, Socrates' beautiful animals, in action. The teleological criteria of composition, completeness, and proportionality, are relevant to his account too in the sense that the actions of the good citizens in war should paradigmatically display those qualities. After his request for forgiveness (*suggnōme*) that lasts almost two pages Critias says that if only he remembers Solon's story sufficiently he will complete his brief in a measured or proportionate way (108d6–7: *doxomen ta prosēkonta metriōs apotetelekenai*). The language seems to echo Timaeus' attempts to put a harmonious end to his own speech (69a–b). Critias' descriptions of the geography and institutions of ancient Atlantis and Athens can be read as displaying similar concerns with geometrical order and simplicity to those of Timaeus' account of the cosmos.[30] I would therefore suggest that the explanation of the monologue format in terms of what I have called teleological criteria of composition may in principle also apply to Critias' account.

However, if Critias shares Timaeus' ambition to present a complete and proportionate account, his failure to finish his account is so much the more spectacular. What are we to infer from the incompleteness? Does it reflect negatively on Critias' memory or character, as suggested by Welliver (1977)?[31] Critias' drawn-out plea for tolerance suggests performance anxiety and may be a sign that he is not up to the job. There is also a certain irony to the fact that Critias stops his speech at the point where Zeus is about to address the other gods, assembled to punish the increasingly decadent Atlantids. For in his opening speech (*Crit.* 107a7–e3) Critias contrasted his task of describing the actions of human beings with Timaeus' task of describing the actions of god, saying how much more difficult his own task was than Timaeus'. Furthermore, if Critias is to be associated or perhaps even identified with Critias the tyrant, then there is an even greater irony in asking him of all people to speak about the actions of Socrates' ideal citizens. Perhaps we should never have expected Critias to deliver. To let Critias be the one to fail to reciprocate Socrates' hospitality may seem a fitting expression of how Plato thought Critias in his political life had insulted the legacy of Socrates' conversations. Alternatively, the incompleteness of Critias' speech may reflect more generally on the difficulty of describing the actions of ideal citizens for any of us who, like Critias, has grown up in a flawed society. It may be possible for a philosophical *Übermensch* like

[30] For the thematic connections between the two accounts cf. chapter 1.

[31] Welliver (1977) 44: 'We can now see the full irony of Critias's falling silent just as he describes the punishment of Atlantis – he is himself a true Atlantid.'

Timaeus, chief amongst citizens of well-governed Locris and philosopher *extraordinaire*, to demonstrate the cosmos that the gods made, though even he, as we saw, had his difficulties. But Critias and Hermocrates are lesser mortals, grown up in factious Athens and hedonistic Syracuse, who are asked to describe the actions of ideal citizens. The frailty of the absent fourth speaker was perhaps a foreboding that the task Socrates set them yesterday was after all too great for those of us who have grown up in a disordered city.

What implications does the preference for the monologue form in the *Timaeus-Critias* have for our general view of Plato's use of dialogue? The *Timaeus-Critias*, on its own, does not signal the death of the Platonic dialogue. Other works, traditionally dated later than the *Timaeus*, such as the *Laws*, revert to a form of the dialogue. What the *Timaeus* shows, rather, is Plato's flexibility in gearing his form of writing to the subject matter. A single, proportionate, complete cosmos is best represented by a single, proportionate, complete speech. The teleology of cosmic composition has been reproduced by the teleology of literary composition. The *Timaeus-Critias* itself has been revealed as an instance of good order.[32]

[32] This chapter was originally read to the Bristol Classics Research Seminar. My thanks in particular to James Doyle, Aleka Lianeri, Miriam Leonard, and Imogen Smith for constructive criticism.

Epilogue

At the beginning of the *Timaeus-Critias* Socrates likened himself to a spectator wishing to observe beautiful animals in motion. At the end of the work the world and its denizens have been shown to be just that. The cosmos itself is a beautiful animal moving in time and space and it is composed of animals, planets, humans, and other animals, whose design displays the greatest possible rationality. Even the city and its actions can be understood by its place within the greater cosmic order. As readers we are placed in the position of observers of a cosmos which, like that famously presented on the shield of Achilles in *Iliad* 18 and reconstructed on the cover of this book, invites us to understand our role as human beings and citizens by inclusion in a world order.[1] If this is the world we live in, if this is how nature works, then we should arrange our lives accordingly. The *Timaeus-Critias* coaxes us into adopting an ordered life, not by knockdown argument, but by showing our place in a picture. It is the detail and completeness of this picture that draw us in. Cosmology plays an important role here particularly for those of us who have not been brought up in a well-ordered city and who therefore lack first-hand experience of paradigms of good order. To those people Plato in the *Timaeus* points to the cosmos and says, look at the orderly motions of the planets, look at the geometrical composition of the simple bodies, consider even the composition of your own body: everywhere you will find rational order that works for the best. So, if you want to organize your life for the best, you too should conduct your life according to rational order.

[1] Cf. Taplin (2001) 357: 'the city on the shield puts the *Iliad* itself into perspective: it puts war and prowess into perspective within the world as a whole . . . It is as though Homer has allowed us temporarily to stand back from the poem and see it in its place – like a "detail" from the reproduction of a painting – within a larger landscape . . .'

Teleology has played a crucial role in this demonstration. It is the general applicability of teleological explanation to the cosmos and its parts that serves to persuade us that goodness is a power that we can trust to win through also in human affairs. Teleology has therefore been the key theme in this study. We saw teleology provide a link between Timaeus' and Critias' accounts in so far as they illustrated goodness as an organizing principle in the world of nature and politics, respectively (chs. 2 and 3). Cosmic teleology was shown to be underwritten by the divine craftsman (ch. 4), whose purpose played a crucial role not only in the formation of the heavens, but also in the persuasion of necessity (ch. 5) and the organization of the simple bodies within the receptacle (ch. 6). Teleology was seen as fundamental to the account of the tripartite human soul and its relationship to the body (ch. 7). Vision was explained teleologically by its crucial role in stimulating the study of astronomy (ch. 8). Finally, Timaeus' account was itself shown to instantiate the same values of beauty and proportionality promoted by cosmic teleology (ch. 9).

To some such a worldview may suggest a cosy Wordsworthian haven:

> And this prayer I make,
> Knowing that Nature never did betray
> The heart that loved her; 'tis her privilege,
> Through all the years of this our life, to lead
> From joy to joy: for she can so inform
> The mind that is within us, so impress
> With quietness and beauty, and so feed
> With lofty thoughts, that neither evil tongues,
> Rash judgments, nor the sneers of selfish men,
> Nor greetings where no kindness is, nor all
> The dreary intercourse of daily life,
> Shall e'er prevail against us, or disturb
> Our cheerful faith, that all which we behold
> Is full of blessings.[2]

Yet, the Platonic view of nature is one that is profoundly depersonalized. One may object that Plato would not have found goodness in nature if he had not already projected human values onto it. However, such goodness as nature instantiates is a mathematical order that many of us would find void of any specifically human characteristics. As we saw in chapters 1 and 7, human emotions such as love, anger, fear, and daring are additions to

[2] Wordsworth's 'Lines composed a few miles above Tintern Abbey' from *Lyrical Ballads*.

an essentially rational soul. Such emotions may serve their purpose whilst we live in a human body. But ultimately the stated aim is to shed these emotions, to identify through astronomy with the rational circles of the heavenly bodies and thus to return to a stellar life of pure reason. If nature offers us guidance here, it is not in the form of emotional consolation, but in that of hard mathematics. For Plato, to imitate nature is to turn oneself into something at once much more and much less than a human being.

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